MARINE REVIEW.

VOL. XIII. CLEVELAND, O., APRIL 2, 1896. No. 14.

Lake Hull Tariff for 1896.

Following is the schedule of insurance rates on hulls adopted by lake underwriters at the meeting held in Buffalo recently. One year after another rates are materially increased on low grade vessels. It would certainly seem that A2 vessels will be compelled to run through the coming season without insurance on account of this tariff:

VESSELS OF A1 AND A1½ CLASS—SEASON APRIL 1 TO DEC. 10.

		A 1	A 1½
Steel steam vessels	All valuations	$3 50	.....
Wooden steam vessels	$100,000	4 25	$4 75
	$ 60,000 to $100,000	4 50	5 00
	$ 30,000 to $ 60,000	4 75	5 25
	Below $30,000	5 00	5 50
Steel sail vessels	All valuations	4 50	5 00
Wooden sail vessels	$30,000 and over	5 50	6 00
	Under $30,000	6 50	7 00

Total loss and general average, including collision, } 25 per cent. off steel. 20 per cent. off wood.

Ten per cent. off for double bottom sheathed steel boats.

Seven-eighth collision clause subject to $500 deductible average.

Partial loss subject to ½ of 1 per cent. deductible average, but not less than $250 in any case.

VESSELS OF A2 AND LOWER CLASSES—SEASON APRIL 1 TO DEC. 1.

Valuation in policy.	$50,000 and under $75,000		$25,000 and under $50,000		$15,000 and under $25,000		$10,000 and under $15,000		Under $10,000		Particular average.
	Three-fourths.		Three-fourths.		Two-thirds.		Two-thirds.		Two-thirds.		
Limit of insurance except B 1.	Rate.	Per Cent.	Rate.	Per Cent.	Rate.	Per Cent.	Rate.	Per Cent.	Rate.	Per Cent.	
Steamers.											
A 2	7	5¼	7¾	5¾	8¾	6½	9¾	7¼	13	9¾	
A 2½	.....	.....	10	7½	11	7¾	12	9	14	11	
Limit ⅔ on B 1	.....	.....	11	8	12	9	13	10½	17	13	
Sail.											
A 2	8	6	9½	7	10½	8	12	9	14½	11	
A 2½	.....	.....	10½	8	12	9	13½	10	16	12	
Limit ⅔ on B 1	.....	.....	12	9	14½	11	16	12	18½	14	
									$5,000 and under $10,000	Under $5,000	
Lake Tugs.											
A 1 and A 1½	.....	.....	3½	.....	4	.....	4¾	.....	5¾	7	5
A 2	.....	.....	4	.....	4½	.....	5¼	.....	6¼	7½	6
A 2½	.....	.....	.....	.....	.....	.....	6	....	7	8¼	8
B 1	.....	.....	.....	.....	.....	.....	6¾	.....	7¾	9	9

Total loss and general average deduct 20 per cent.

Lake Carriers' Matters in Washington.

President J. J. H. Brown and Secretary C. H. Keep of the Lake Carriers' Association, who have been in Washington for several days past, have been giving attention not only to the Detroit river bridge bill but to all other legislative matters in which the association is interested. Secretary Keep wired the REVIEW today (Thursday) as follows:

"The Detroit bridge bill is likely to be put on passage in the senate any date. Senator Vest stated several days ago that it would be called up very soon. Senator Sherman returned yesterday. He will speak in opposition to piers in the river and will probably offer an amendment to the bill abolishing piers in the channel, and providing for a single span bridge. Senators Nelson and Davis of Minnesota, and other opponents of the bridge piers, are not hopeful of defeating the bridge bill in the senate. The attitude of the commerce committee will, they believe, control enough members to pass the bill in that body.

"The bill authorizing the immediate construction of North Manitou light-house will be favorably reported in the senate today.

"Assistant Secretary of Treasury Hamlin has the matter of stationing day and night customs officers at Mesabi dock, Duluth, under advisement, with prospect that officers will be provided at the dock to issue clearances.

"General Craighill, chief of engineers, will get an immediate report from engineer officer at Detroit as to the necessity of dredging the 'middle ground' at Black River, Port Huron. He will also decide the question as to whether any part of the 20-foot channel appropriation can be used to do this work.

"The matter of regulations in St. Mary's river is in the hands of the commissioner of navigation and the chief of the marine service to frame regulations governing vessels and rafts in that river. These officers desire lake navigators to send them at once carefully worded rules which they deem necessary in the interest of safety.

"The river and harbor bill has not as yet been made public. It is understood that the amounts actually appropriated are small, but that the lakes are well taken care of in putting many important projects on the contract system."

Lake Freight Matters.

David Wallace and others of Lorain, who own the steamers Vega and Vulcan, as well as the steamer Robert Wallace and consort David Wallace, have engaged all of these vessels on what are practically full season contracts. The Vega and Vulcan will carry ore from the head of Lake Superior for M. A. Hanna & Co. at $1 and the Robert and David Wallace are placed with the J. H. Outhwaite & Co. for Marquette ore to Nov. 1 at 90 cents. These contracts were made several days ago but the information was not given out. The same owners have contracted with A. C. Saunders & Co. to take a block of coal from Ohio ports to the head of Lake Superior, but it is understood that the rate in this transaction will depend upon future contracts. Capt. James Davidson of West Bay City, who took 100,000 tons of dollar ore several months ago, has also contracted with H. D. Turney to carry 50,000 tons of coal from Sandusky and Toledo to the head of Lake Superior at 42½ cents. A year ago he took a large quantity of Lake Superior coal at 32½ and 35 cents. The steamer C. B. Lockwood is chartered for a first trip with coal, Cleveland to Chicago, at 50 cents, and it is understood that a few other vessels engaged to take single cargoes of coal to Milwaukee will probably get 50 cents, although charters are for the going rate.

Notwithstanding these ore contracts, it can be said that the ore dealers have not as yet tried to make sales. They are just ready now to approach the furnace men on the subject of sales. The Wallace boats, referred to above, have been engaged in carrying ore for M. A. Hanna & Co since they were built, and the charter on that account is surrounded by circumstances that counteract materially its importance as a transaction establishing a market rate. It is not looked upon as such, and on the contrary it is certain that the feeling among vessel owners against anything less than $1.10 is much stronger to-day than it was two or three weeks ago. The serious problem of low water is the great cause for this feeling. Contracts made thus far have not started a general movement towards closing up the business of the coming season. If the ore dealers, who are about to offer their product for sale, find furnace men ready to buy as they were a year ago, vessels will be paid more than $1 on ore; if sales are delayed, the outcome will be uncertain, and more ore will probably be covered at dollar freight, but the great bulk of tonnage in the ore trade will run without contracts rather than accept the low rate. Declarations of this kind have been heard from vessel owners many times in the past, and in the face of them they have taken the rates to which they objected, but the certainty of a heavy movement of freight under any circumstances this season makes the situation exceptional.

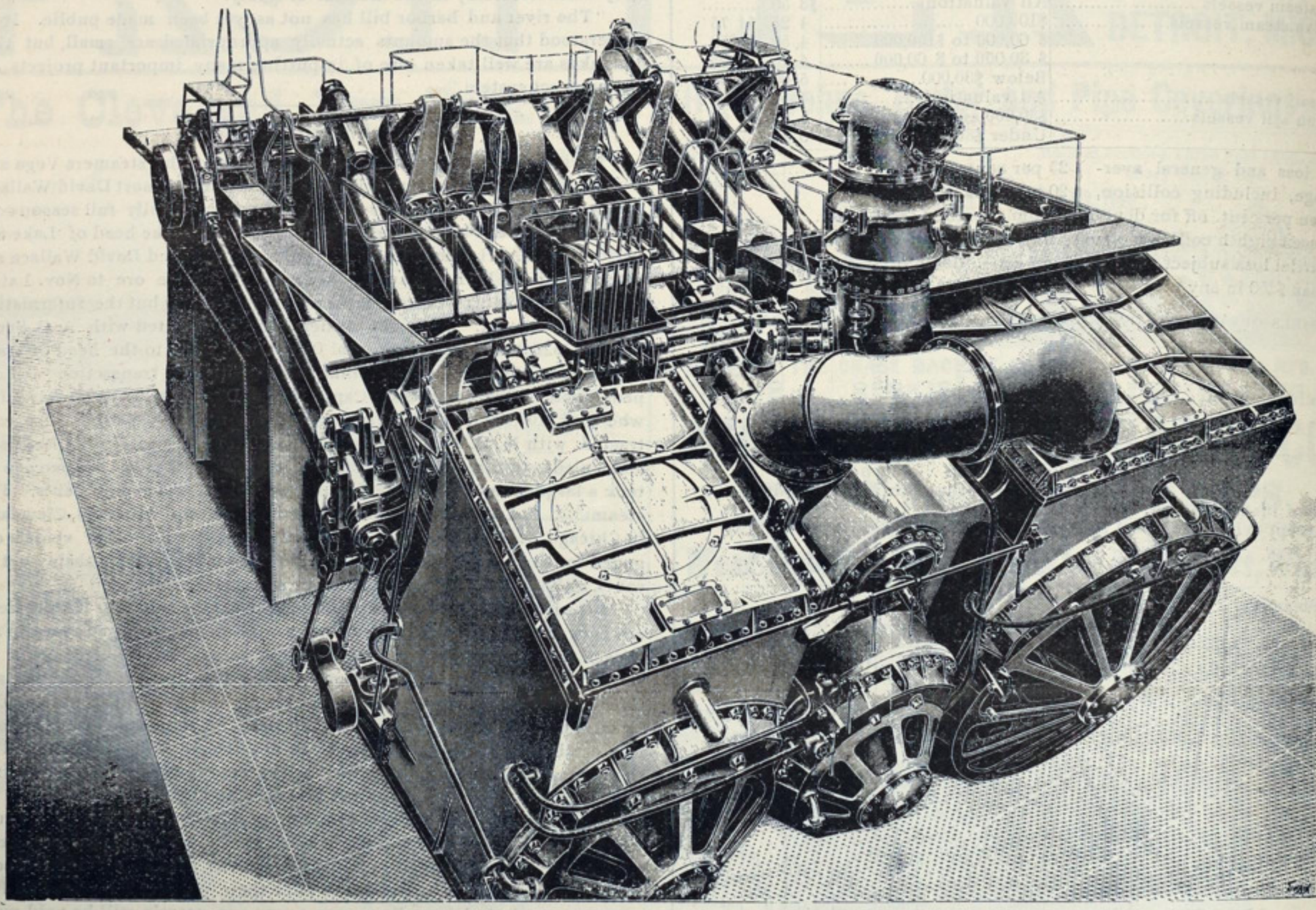
The British warship Penguin, while engaged in making deep-sea soundings between Tonga and New Zealand, recently, is reported to have got bottom at 5,155 fathoms. The deepest sounding previously made was by the American warship Tuscarora off the northeast coast of Japan, when bottom was reached at 4,655 fathoms.

Capt. Daniel McLeod, manager of the Inland Lloyd's Register, desires to direct attention to two errors of print in the book. Valuation of the steel steamer Marina should be $160,000 instead of $100,000, and that of the wooden steamer Roumania should be $95,000 instead of $85,000.

"ROPER'S LAND AND MARINE ENGINES," BOUND IN MOROCCO WITH FLAP AND POCKET, WILL BE MAILED TO ANY ADDRESS FOR $3.50 SENT TO THE MARINE REVIEW, CLEVELAND, O.

Big Triple Expansion Diagonal Engines.

Engines illustrated on this page are probably the most powerful triple expansion engines ever fitted to a paddle steamer. They are of a type that has been fitted by the Fairfield Ship Building & Engineering Co. of Glasgow to several big side-wheel steamers for the Zeeland Steamship Co., a corporation operating a big line of passenger ships on the North Sea between Queenborough, England, and Flushing in Holland. The latest of these vessels is the Prins Hendrik, which was guaranteed to make 21 knots in deep water. The Prins Hendrik and her sisterships (three of them are duplicates) are required to make the run of 110 knots between the two points named in about six hours. For a considerable portion of this distance the steamers are in shallow water and hence the necessity of high speed in deep water. The shallow water is also a prime cause for the adoption of this type of engines, as it was the aim of the management to overcome the annoyance of vibration when running at high speed. In order to understand something about the vessels for which these engines were constructed, it may be noted that they are each 320 feet long, 35 feet 6 inches broad and 24 feet deep to the uppermost deck. There are three decks, and accommodations provided are for



BIG TRIPLE EXPANSION DIAGONAL ENGINES FOR PADDLE STEAMER.

the most part that of a daylight trip but the steamers have in each case state rooms affording sleeping accommodation for 180 first-class and seventy-two second-class passengers.

The three cylinders of the engines are placed side by side to work a three-throw crank shaft. Cylinders are 51, 75 and 112 inches diameter and the stroke of piston is 78 inches. The high pressure cylinder has a piston valve, while the intermediate and low pressure cylinders each has a flat slide valve, all being worked with the usual double excentrics and link motion valve gear. Both the crank and paddle shafts are of mild steel, the crank shaft being connected to the paddle shaft by flanged couplings and bolts. Between the cylinders and the supports for the crank shaft the condenser is placed, which is of cylindrical form and constructed of boiler plate, the necessary condensing water being supplied by a large centrifugal circulating pump worked by two independent steam engines. A feed heater, feed filter, an evaporator, and all other such modern appliances are also provided in the engine room. The starting and reversing of the main engines is effected by a steam and hydraulic reversing engine. The whole of the paddle wheels, including the floats and feathering gear, are of the Siemens-Martin steel, and the floats are formed with a curved surface. There are two stoke holds in the vessels, one before and one abaft the engines. In each stokehold there are three large single-ended boilers of the ordinary Scotch type, fitted with forced draught. As each boiler has four furnaces, there are consequently twenty-four furnaces in the vessel. The working pressure is 170 pounds per square inch, and the horse power upwards of 9,000 indicated. The description and engraving are from the Engineer of London.

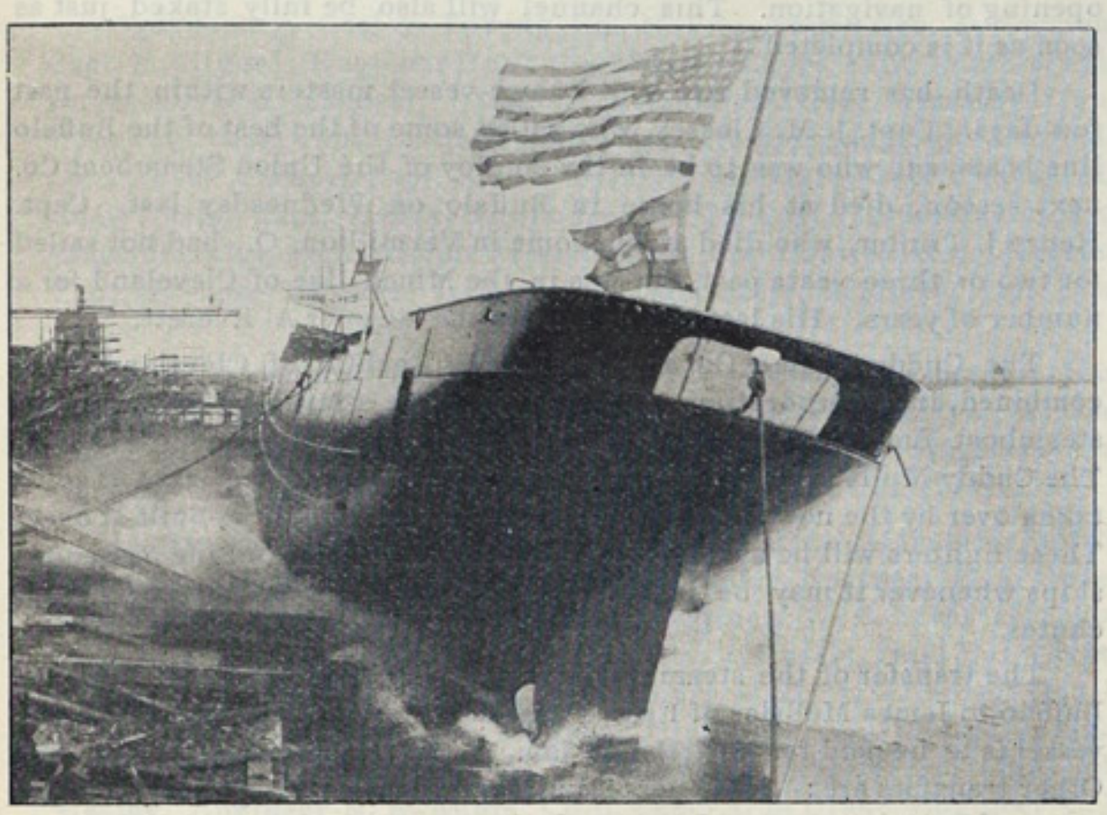
An Important Point in Admiralty.

Last week, the district court for the northern district of Ohio, sitting at Toledo, heard the personal injury claims against the passenger steamer City of Toledo, growing out of the collission between that steamer and the schooner Madaline T. Downing, in tow of the tug Frank S. Butler, in August last. Ida Sanderson was the original libelant, and in her cause four other passengers intervened. The steamer was held not at fault, and the libel dismissed, together with two of the intervening libels. The four interveners had become such by special leave of court and in the prayer of their libels had asked that they be permitted to submit their claim with the original libelant, and did not pray for process of any kind. On dismissing the original libel, proctors for the steamer asked that the same decree be entered against all the interveners. Two of the interveners were not represented at the hearing, and the decision of the court as to them, was held in abeyance. Without the special prayer the court could probably treat the intervening libels as original libels and issue process thereon against the steamer. In view of the special prayer of the interveners, this case is probably without precedent, and it is doubtful whether the court has power to order the steamer detained.

The ratio of consumption of fuel to the indicated horse power in the year of 1870 equalled three to one; today the ratio of the modern system does not exceed two to one, or a saving in fuel equal to 30 per cent. With the introduction of forced draught, equal to six inches of water under the grate, the ratio of fuel consumption measured in terms of horse power to the unit of grate area, has been increased from twelve to one, to twenty to one. The increased steam pressures, steadier working and greater number expansions, and the substitution of steel, have enabled 50 to 60 per cent. greater motive power to be given to a ship of given tonnage and displacement.—The Engineer, New York.

Ship Yard Matters.

A Detroit correspondent says: "The work of rebuilding the steel steamer Fayette Brown at the Clark dry dock is about completed, and Supt. Al. Smith, who was placed in charge of the Clark plant recently, says he is confident that the steamer will be fully as strong as she was when new, and her carrying capacity will be increased something more than 500 tons. The work of putting on wooden planking is completed and the steel plating will be all in place by the end of this week. A new heavy steel deck stringer on the vessel is 6 feet wide, instead of 3 feet as before. This will reduce somewhat the width of hatchways. Oades' marine railway is now occupied by the steamer City of Marquette, engines of which were compounded by Hodge & Co. While on the railway the Marquette will be fitted with shaft, wheel, etc. Repairs of various kinds are being made by the Detroit Dry Dock Co. on the ferry steamer Fortnne, barge Norsman of Alpena and the Canadian Pacific car ferry Ontario, which was in collision with the steamer Lansdowne. Ore docks of the Union Iron Co. are being repaired and some changes are being made in unloading machinery."



LAUNCH OF 400-FOOT STEAMER CITY OF BANGOR AT WEST BAY CITY, MICH.

At the ship yard of the Globe company, Cleveland, Superintendent Robert Curr has a force of 1,055 men at work. He confidently hopes to launch the first of the Rockefeller ships about the 20th of the present month, and if this is done her completion will not be as far behind time as was expected when it was found that bad weather during March had greatly upset all plans, not only at this yard but at all of the ship yards around the lakes. The Globe company has just completed quite an important job on the Lake Superior Iron Co's steamers Choctaw and Audaste. With a view to being certain of favorable rates of insurance on these ships the management of the Lake Superior company ordered certain strengthening features in them. Twelve channel beams and six stanchions have been put into the middle of the hold, and a belt of plating added to the sides. There are twelve new 14-foot plates on each side of the two vessels. A deep bracket has also been put in the way of every hatch on the spar deck.

An announcement from Philadelphia refers to the death of Geo. W. Williamson of the firm of Williamson Bros., well-known manufacturers of steam steering engines. Mr. Williamson's duties with the Philadelphia firm had to do mostly with its finances. Mr. William C. Williamson, of the same firm, is now visiting lake ship builders in the interest of his machines. They are to be used on big steel steamers being built by the Cleveland Ship Building Co., Detroit Dry Dock Co., F. W. Wheeler & Co., Union Dry Dock Co. and American Steel Barge Co.

The steel tug Edna G., which will be launched at the yard of the Cleveland Ship Building Co., Saturday, is 100 feet over all, 23 feet beam and 13 feet depth. This is the tug building for the Duluth & Iron Range Railway Co. for service at Two Harbors. Engines are compound, with cylinders 18 and 40 inches diameter by 30 inches stroke. She will have one of the American Ship Windlass Co.'s tug boat windlasses with iron towing bitts and steam gypsey, and her perfect equipment generally will make her one of the finest tugs on the lakes.

Mr. R. C. Veit of No. 26 Broadway, New York, superintendent of transportation and lighterage for the Standard Oil Co., will in a few days ask for bids on a steel tug 130 feet long and of about 9 feet draft with fuel, etc., aboard. It was intended to have this boat suited for both lake and coast service in towing oil barges, but it may be that her draft will, for the present at least, prove a trifle too much for movement through the St. Lawrence canals without encountering difficulties in some of the locks.

Two views of the steel steamer City of Bangor, which is being built by F. W. Wheeler & Co. of West Bay City, Mich., for the Eddy Bros. and others of the same place, are presented on this page. This vessel is 384 feet over all, 45 feet beam and 26½ feet hold, and will be fitted with triple expansion engines, and Providence windlass and capstans, as well as all other machinery and appliances that are found on modern coarse freight carriers in the lake trade.

A tug 140 by 24½ by 13 feet, which is being built by the Jenks Ship Building Co. at Port Huron, will be ready for launching shortly. The Thompson Tug Co. is also building a tug at Port Huron that is nearing completion.

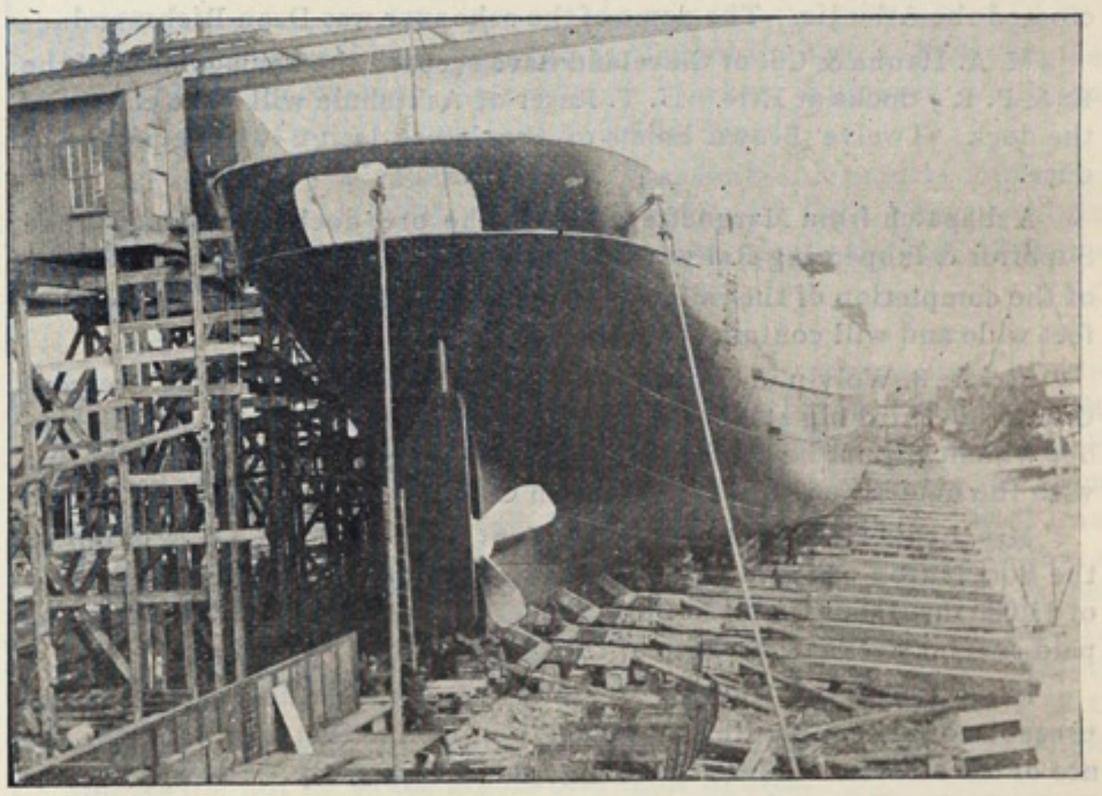
Denny Bros.' Tank.

Editor MARINE REVIEW: In the MARINE REVIEW of Feb. 20, 1896, page 10, I see an article in relation to the Denny Bros. building side-wheel steamers of 300 feet length and 35 feet beam. The article states that they use a tank to ascertain the speed these steamers will make. A number of our boatmen here have been considerably interested in this article, but have not been able to fully comprehend what is meant by the tank; how it is used, etc.; neither can we see how the speed of a boat can be obtained in so small a space. If you will kindly explain more fully in your next issue, you will confer a favor on the Chautauqua boatmen.

T. E. GRANDIN, Superintendent,
Jamestown, N. Y., March 30, 1896. Chautauqua Steamboat Co.,

A copy of the MARINE REVIEW of August 17, 1893, containing an illustration and full description of the Denny tank, has been forwarded to the writer of the above communication. All naval architects and most readers of marine journals know that Great Britain, France, Italy and other governments, as well as the firm of Denny Bros., Clydebank ship builders, maintain tanks and the necessary apparatus for obtaining, through scientific experiments with models, valuable information regarding ships that are to be built from such models. It is also well known that for severel years past leading officials of our own navy have tried to obtain from congress an appropriation for the construction of a plant of this kind in this country. Here it is proposed to have the tank practically at the service of private ship builders, although controlled by the navy. Even now there is a bill before congress, which in substance is as follows:

"Be it enacted, etc., that the secretary of the navy be directed to establish a model tank with all proper appliances for the purpose of investigating and determining the most suitable and desirable shapes and forms to be adopted for United States navel vessels. This model tank shall be located at Washington, D.C., upon such government reservation already



LAUNCH OF 400-FOOT STEAMER CITY OF BANGOR AT WEST BAY CITY, MICH.

under the control of the navy department as the secretary of the navy may designate, and shall be built upon plans approved by him. A naval constructor shall, under the direction of the bureau of construction and repair of the navy department, have charge of the model tank and all work done in connection with it. At this model tank experiments may be made for private ship builders upon the authorization of the secretary of the navy; provided that the cost of material and of labor of per diem employees in making such experiments shall be defrayed by the private ship builder; and provided further, that the results of such experiments shall be regarded as confidential and shall not be divulged without the consent of the ship builder for whom they may be made. For the model tank with all necessary buildings and appliances $100,000 is hereby approdriated."

Duluth Freight Matters.

DULUTH, Minn., April 2.—Notwithstanding the talk of a surplus of coal here, which has been indulged in quite freely of late, caretul inquiry among the coal men would indicate that there will certainly be not more than 100,000 tons of coal on dock at this point when navigation opens. The grain freight market has been very dull of late. Not more than three or four cargoes have been placed within the past ten days. Quite a few vessels are offered at the 3-cent rate. There is in store in Duluth and Superior elevators about 17,500,000 bushels of grain, and it is quite probable that by May 1 this amount will be increased by 2,000,000 to 3,000,000 bushels. So much grain has never before been in store here at the opening of navigation. A circular sent out a few days ago by one of the brokerage firms here advances the opinion that 10,000,000 bushels will be moved during May, and adds the following note: "The quantity of wheat chartered exceeds all previous records. We shall not be surprised, therefore, if there is no great inquiry for tonnage from now until the opening of navigation. A great deal of money is required to carry wheat for shipment, and most shippers seem to think that unless the margin of profit is greater than it is at present, it is hardly worth while for them to carry any additional burdens, at least until some of the wheat which they have sold passes from their hands. Lumber inspectors still profess to have no authority to engage vessels for opening shipments. It is quite apparent that they are waiting for the establishment of ore rates before bidding for lumber carriers. There are reports of some engagements having been made on the basis of $1.75, but these rumors lack confirmation. It is quite probable that something will be done in lumber freights during the coming week."

Around the Lakes.

Capt. Alex R. Sinclair, Duluth vessel broker, now owns one-half of both the steamer Langell and schooner Arenac.

April 10 is the date fixed for resuming the display of wind signals on all lakes, excepting Lake Superior. May 1 is the date for Lake Superior.

A wooden steamer 210 feet over all, 36 feet beam and 13 feet hold will be launched from the ship yard of Alex. Anderson, Marine City, in a few days.

The name of the new barge building at Marine City for Connelly Bros. of Buffalo is to be that of the firm, Connelly Bros. She is to tow with the Wotan.

The wrecked steamer Britannic has left Dunford & Alverson's dock, Port Huron, for Marine City, where her repairs will be finished, and the schooner Montgomery has taken her place in the Port Huron dock.

Morris E. Lee, marine attorney and adjuster at Cape Vincent, N. Y., took from the lakes to Europe the first centre board schooner that ever crossed the Atlantic. The name of the schooner was Dean Richmond.

M. A. Hanna & Co. of Cleveland have secured the management of the E. & P. R'y docks at Erie. H. T. Raser of Ashtabula will have charge of the dock. Twelve Brown hoists of the latest design will be put up at once.

A dispatch from Marquette says that the ore dock of the new Lake Superior & Ishpeming Railway at Presque Isle will be finished in advance of the completion of the railway. The dock will be 54 feet high and 52 feet wide and will contain 200 pockets.

Mr. A. B. Wolvin of Duluth has decided to give the name Crescent City to his third big steel steamer, which is to be built at South Chicago, but which will not be completed until the spring of 1897. This is in line with the names Zenith City and Queen City.

Mrs. Lydia Geel, wife of the late Capt. C. S. Geel, has made in one of the Port Huron papers a public acknowledgement of the prompt payment of $1,000 insurance from the Ship Masters' Association. The claim was paid several weeks in advance of the regular time of payment.

In a letter to the REVIEW Mr. John Gordon of Buffalo says he has at present no plans regarding a package freight line that would involve the use of the steamer Globe, which he purchased recently. He will use the Globe during the coming season in general business applying her wherever freights are most profitable.

Capt. Wm. Downs, who sold his Ashtabula harbor tug interests recently, has purchased the passenger steamer Skater from Milwaukee parties and will operate her during the coming season between Cleveland and Buffalo, stopping at two or three intermediate points. The vessel is said to be licensed for 400 excursionists.

G. A. Simpson, well known to lake vessel masters as a compass adjuster, will endeavor to sell, during the coming season a long-distance speaking trumpet, or megaphone as it is called. It is a patent instrument designed to carry and receive the voice. Mr. Simpson says it will be useful for giving orders from pilot house to the after end of a steamer, and possibly for communication between a steamer and towing vessel.

Mr. B. F. Perkins, representing the National Association of Masters and Pilots of Steam Vessels, has succeeded, after forming a large branch of the organization in Buffalo, in inducing the Cleveland branch of the Lake Pilots' Association to join his association in a body. The Cleveland branch will be known as Harbor No. 42, and all details of affiliation with the national body will be arranged at a meeting to be held on Saturday of this week.

Capt. D. West of Detroit has a contract from the government to stake the new Grosse point channel upon the opening of navigation. No arrangements have been made as yet, however, to light this channel. Preparations are being made also to have the 800-foot channel extending from Bois Blanc island out into Lake Erie, in readiness shortly after the opening of navigation. This channel will also be fully staked just as soon as it is completed.

Death has removed two well-known vessel masters within the past few days. Capt. J. M. Clossey, who sailed some of the best of the Buffalo line boats, and who was to be in the employ of the Union Steamboat Co. next season, died at his home in Buffalo on Wednesday last. Capt. Henry J. Trinter, who died at his home in Vermillion, O., had not sailed for two or three years past, but was in the Minch line of Cleveland for a number of years. His last command was the steamer A. Everett.

The Cuddy-Mullen Co. and the Morris Coal Co. of Cleveland have combined, in a corporation to be known as the Cleveland Fuel Co., all steamboat fuel business that is to be done by lighter in Cleveland. The Cuddy-Mullen Co. is already in possession of a lighter that is to be taken over by the new company, and another lighter will be built at once. These lighters will be available for work on the Northern Line passenger ships whenever it may be inconvenient to fuel the big steamers from chutes.

The transfer of the steamer Emily P. Weed from Hollister Bros. of Buffalo to James McBrier of Erie is practically a cash transaction, as the vessel is to be paid for entirely by Jan. 1, 1897. The price is $140,000. Other transfers are: Schooner John Kelderhouse to Capt. W. H. Hargrove of Detroit; steamer Leuty and consorts Bottsford and Jackson, G. K. Jackson of Bay City to Penoyer Bros. of Au Sable; tux Maxwell A. to Delta Lumber Co.; tug Sumner to H. W. Bottsford; schooner Tailor, Connolly Bros. of Buffalo to Capt. Robert Todd, $1,300.

Not much importance is attached of late to launches at the ship yard of the Chicago Ship Building Co. The steel schooner Geo. E. Hartnell, which is being built for the Northwestern Transportation Co. of Detroit, to tow behind the steamer S. R. Kirby, was launched at South Chicago Saturday without even a newspaper announcement of the fact before hand. The Hartnell is 366 feet over all, 352 feet keel, 44 feet beam and 26 feet moulded depth, and will carry about 4,000 tons on 14½ feet draft. The Chicago company expects to launch the steamer Geo. N. Orr on the 15th inst.

Major Marshall of the army engineering corps, who has been stationed at Chicago for a long time past, is known to have been very much disturbed on account of attacks made upon him by Chicago newspapers following his recent report in the matter of harbor improvements, but he should not have asked to be transferred to other duty. Chicago vessel owners who are fully acquainted with the history of river improvement matters at that point know that Major Marshall has honestly represented the government and has upheld the shipping interests. Although his report favoring South Chicago may have been a mistake, it is of a kind that has done no harm, but on the other hand has stirred up the citizens of Chicago to a proper interest in their lake business. It is to be hoped that the war department will not act upon Major Marshall's request. Better pass over the South Chicago recommendation and uphold the local engineer by continuing him at his present post with assurance of better treatment from the people whom he has tried to serve faithfully.

M. Schrank, agent of the Chicago & Northwestern Railway at Ashland, has been in Cleveland during the past week looking after matters pertaining to next season's ore movement from the Gogebic range. All chutes on the old dock of the Northewestern company have been extended and a large number of the pockets raised, so that in addition to the big new dock, which is modern in every way, the company will have a second dock adapted to both large and small vessels. Mr. Schrank returns to Ashland to immediately begin the work of filling the docks with ore. Although he says he does not look for an opening of navigation on Lake Superior before April 25, some time will be required, probably two or three weeks, in filling the docks.

The solid through trains of the Nickel Plate road, equipped with all modern appliances for safety, speed, and comfort, are the prominent feature of that popular line. Their fast eastern express, leaving Chicago at 1:30 p. m. daily, runs through solid to New York City, arriving at that point at 6:30 p. m. the next evening. Experience is the best teacher. After you experience a trip on this train, we are confident of your future patronage. 19-Mar. 31.

Appointments of Masters and Engineers.

Rice, W. E., Port Huron, Mich.: Steamer—Rhoda Stewart, Capt. W. E. Rice, Engineer Jas. Southgate. Schooners—F. M Knap. Capt. J. Powell; Wm. Brake, Capt. Fred. Kirker; Albany, Capt. A. B. Scott; Magnet, Capt. Geo. Bennett.

Milwaukee Tug Boat Line, Milwaukee, Wis.: Steamers—Neosho, Capt. W. A. Wright; Engineer D. W. Chipman; Helena, Capt. Jo. Leisk; Engineer Scott Pratt; Veronica, Capt. O. J. Soleau, Engineer W. J. Reardon. Schooner—Amboy, Capt. W. R. Williams.

Starke, Conrad, Milwaukee, Wis.: Steamer—E. A. Shores, Jr., Capt. L. Olson, Engineer W. Bridges.

Ogdensburg, Coal & Towing Co., N. Y.: Tugs—Geo. D. Seymour, Capt. P. Clifford; Engineer Hugh Goodheart; Meyra, Capt. James Martin, Engineer Wm. Spencer. Barges—Menominee, Capt. Timothy Hunt; Henry Witbeck, Capt. Justin Mallett; Isaac Stephenson, Capt. Alexander Dion; Fred Carney, Capt. Adelar Demers; Hoboken, Capt. Edward Maloney; Argo, Capt. Henry Newhouse; H. B., Capt. Michael Rodrigue; James Buckley, Capt. Joseph Lalonde; Aid, Capt. David Sauve; England, Capt. Narcisse Lalonde; Ireland, Damase Latour; Scotland, Capt. Louis Sauve.

Hart's Steamboat Line, Green Bay, Wis.: Steamers—Eugene C. Hart, Capt. C. B. Hart, Engineer James Miller; C. W. Moore, Capt. E. W. Hart, Engineer Jules Schram; Welcome, Capt. P. Roulette, Engineer Geo. Coulter; Fannie C. Hart, Capt. H. W. Hart, Engineer Tim Hudson.

Lackawanna Transportation Co., M. M. Drake Manager, Buffalo: Steamers—Grand Traverse, Capt. Andrew Kelley, Engineer E. A. Carter; Lackawanna, Capt. Frank Weinheimer, Engineer W. B. Lewis; Scranton, Capt. J. H. Greene, Engineer Chas. Van Every; Russia, Capt. J. D. Greene, Engineer Wm. Brown; Florida, Capt. Henry Murphy, Engineer Geo. M. Wise; Wyoming, Capt. Jas. Connors, Engineer Geo. Bohnert; Cuba, Capt. Robert Young, Engineer J. Mayberry; Arthur Orr, Capt, John Massey, Engineer N. L. Annis; Chili, Capt. A. B. Drake, Engineer C. M. Stoddard.

North Shore Navigation Co., Collingwood, Ont.: Steamers—City of Collingwood, Capt. W. J. Bassett, Engineer Chas. Robertson; City of Midland, Capt. F. X. Lafrana, Engineer Wm. Whipps; City of Toronto, Capt. A. C. Cameron, Engineer D. McQuade; City of Parry Sound, Geo. H. Playter, Engineer J. L. Smith; City of London, Capt. Ernest Walton, Engineer Clark Wilber.

Western Transit Co., S. D. Caldwell, Manager, Buffalo: Steamers—Arabia, Capt. Robert Murray, Engineer Patrick Welch; Badger State, Capt. Alex. Gillies, Engineer J. L. Walker; Boston, Capt. Dugald Buie, Engineer Thos. McCabe; Buffalo, Capt. Patrick Shea, Engineer Wm. McNulty; Chicago, Capt. F. J. McCabe, Engineer F. A. Miller; Commodore, Capt. R. D. Gardner, Engineer J. W. Brooks; Empire State, Capt. Robert Humble, Engineer W. Brown; Harlem, Capt. Donald Gillies, Engineer Henry Hess; Hudson, Capt. A. J. McDonald, Engineer M. Trouton, Idaho, Capt. R. H. Morgan, Engineer J. Smith; McCormick, Capt. M. A. Huntley, Engineer James Richards; Milwaukee, Capt. Michael Folan, Engineer J. W. Rainey; Mohawk, Capt. Valentine Jones, Engineer M. J. Laney; Montana, Capt. S. R. Jones, Engineer Wm. Tibby; Syracuse, Capt. John Fisher, Engineer J. W. Mark; Vanderbilt, Capt. Neil McCormick, Engineer F. W. Hale.

Shores Lumber Company, Wm. C. Ott, Agent, Chicago: Steamers—Adella Shores, Capt. Wm. Chamberlain, Engineer Chas. McEllroy; Jas. H. Prentice, Capt. Jas. N. Comstock, Engineer Christian Smith. Schooner—Middlesex, Capt. Paul T. Weimar; Halstead, Capt. Lysander Davidson; Constitution, Capt. Louis Johnson.

Sylvester Bros., Toronto, Ont.: Steamers—Eurydice, Capt. Joseph Jackson, Engineer Geo. Munro; L. Shickluna, Capt. H. O. Jackson, Engineer W. H. Cunningham. Schooner—St. Louis, Capt. John Gribbon.

Leathem & Smith Lumber Co., Sturgeon Bay, Wis.: Steamers—Joseph L. Hurd, Capt. Wm. Boyd, Engineer Geo. Kester; I. N. Foster, Capt. C. B. Packard, Engineer James Curry; Pewaukee, Capt. Sam Christerfossen, Engineer Wm. Brown; A. J. Wright, Capt. Wm. McCumber, Engineer Mack Holt; John Leathem, Capt. Henry Tufti, Engineer Oley Sanders; Geo. Nelson, Capt. James Tufti, Engineer Chas Allen; Sydney Smith, Capt. Peat Batchella, Engineer Ed. Webber. Schooners—Aldrich, Capt. Henry Johnson; Evaline, Capt. Gilbert Anderson.

Lake Ontario & Bay of Quinte Steamboat Co., Kingston, Ont.: Steamers—North King, Capt. John Jarrell, Engineer O. James Hickey; Hero, Capt. Wm. Bloomfield, Engineer Wm. Hazlett.

Charlevoix Lumber Co., Charlevoix, Mich.: Steamer—Pine Lake, Capt. Eph. Small, Engineer Theo. Porter.

Swain Wrecking Co., Detroit: Steamer—Favorite, Capt. P. L. Millen, Engineer Geo. L. Simmons.

Flint & Pere Marquette Railroad Co.: Ludington, Mich.: Steamers—No. 1, Capt. Chas. Thompson, Engineer Geo. Depuy; No. 2, Capt. John Nolan, Engineer Finley McLaren; No. 3, Capt. Jos. Russel, Engineer Robert McLaren; No. 4, Capt. ————, Engineer ————; No. 5, Capt. John Doyle, Engineer Henry Niland.

Capt. A. R. Robinson takes command of the Cleveland-Cliffs Iron Co's steamer Kaliyuga as a result of the appointment of Capt. John Lowe to command one of the Rockefeller ships. The steamer Pioneer, also of the Cleveland-Cliffs line, will be commanded by Capt. Stephen A. Lyons.

Hawgood and Avery Transit Co., Cleveland: Steamers—S. S. Curry, Capt Geo. Robarge, Engineer James Norton; Geo. F. Williams, Capt. T. C. Ellis, Engineer Harris Higgins; Servia, Capt. Fred. Ahlstrom, Engineer R. R. Buchanan; Geo. W. Morley, Capt. James Owens, Engineer J. M. Chapman. Schooners—H. A. Hawgood, Capt. Louis Bang; Moravia, Capt. Peter Peterson; F. D. Ewen, Capt. A. C. Hansen.

Johnson, H. J., Cleveland: Steamer—H. J. Johnson, Capt. Chas. Miner, Engineer John Seymour. Schooner—Helvetia, Capt. Cornelius Murphy.

Sicken, M , Marine City, Mich.: Steamers—Santa Maria, Capt. Gean Rathbun, Engineer Chas. Burns; M. Sicken, Capt. John Kuhn, Engineer Wm. Sicken. Schooners—Teutonia, Capt. Wm G. Meldrum; Thos. Gawn, Capt. J. Lawrence; E. J. McVea, Capt. Jos. Chaltrand; Melvina, Capt. Harry Larsen; Spademan, Capt. Geo. Gullett; St. Joseph, Capt. Chas. Fertan.

Playfair Barge & Tug Line, Midland, Ont.: Steamers—St. Andrew, Capt. W. H. Featherstonehaugh, Engineer John McRae; C. W. Chamberlain, Capt. James Foote; Metamora, Capt. R. H. Gilbertson, Engineer A. E. House; Shawanaga, Capt. James Tindall, Engineer J. Norton.

Van Slyke, J. R., Detroit: Steamer—A. D. Hayward, Capt. Edw. Tormey, Engineer D. M. Greeves. Schooners—Geo. L. Colwell, Capt. R. Van Slyke; Geo. W. Johnson, Capt. Al Munroe.

Nelon, Sylvester, St. Catherines, Ont.: Steamer—Sir S. L. Tilley, Capt. John Irving, Engineer J. S. Dawson. Schooner—T. R. Merritt, Capt. R. Freeman.

Kingston & Montreal Forwarding Co., Kingston, Ont.: Barges—Thrush, Capt. W. Simmonds; Hiawatha, Capt. Patterson; Lapwing, Capt. Smith; Condor, Capt. D. Perron; Dakota, Capt. M. Chattel; Huron, Capt. T. Hebert, Sr.; Cherokee, Capt. E. Ledue; Iroquois, Capt. F. Mathew; Beauport, Capt. N. Gamlin; Jet, Capt. L. Pregent; Siren, Capt. J. Ledue; Bismarck, Capt. I. D. Perron; Princess, Capt. F. Mathew; Virginia, Capt. T. Hebert, Jr.

Gordon, John, Buffalo: Steamer—Globe, Capt. W. H. Campau, Engineer W. J. Gerrin.

American Transportation Co., Fairport, O.: Steamers—John Harper, Capt. H. L. Mills, Engineer Edward Reilly; Alex Nimick, Capt. D. P. Rhodes, Engineer E. J. Burns.

McBrier, James, Erie, Pa.: Steamers—Emily P. Weed, Capt. D. S. McDonald, Engineer J R. Blanchette; Fedora, Capt. F. A. Fick, Engineer John Stevens; Nyanza, Capt. Henry Durkee, Engineer Wellington; Uganda, Capt. C. H. Wilson, Engineer Wm. Mead.

Hepburn, A. W., Picton, Ont.: Steamers—Alexandria, Capt. E. B. Smith, Engineer Alex Milne; Empress of India, Capt. George O'Brien, Engineer Francis Summerville; Aberdeen, Capt. Michael Heffernan, Engineer Henry Allison.

It is not a difficult job to secure small appropriations from congress for surveys and estimates of cost on ship-canals, but it is another matter to obtain money for the construction of such canals, especially the big schemes that appear all right on paper, but which are impractical from a commercial standpoint. The Lake Superior-Mississippi river canal scheme belongs to this class. A board of army engineers has just reported that the cost of this canal would range from $7,500,000 to $30,000,000, according to the different routes and the sizes proposed. The latter figure relates to a canal of a size suited to lake vessels, but the estimate would undoubtedly be doubled in the cost of the canal if the building of it was ever undertaken. It is probable also that the engineers did not lie awake nights over their figures.

Pilot McLaughlin of the passenger steamer City of Detroit, which has begun service between Detroit and Cleveland, says that on his first trip down the Detroit river he noted several water marks which have proven reliable in previous seasons, and from these, as well as measurements which he made at Detroit, he is satisfied that the water in the river is about 8 inches lower than it was at this time a year ago.

Why not patronize the Nickel Plate road on your next trip to New York City or Boston? They operate solid through trains, elegantly equipped with palace sleepers and fine day coaches, attended by uniformed colored porters whose duties require them to look out for the comfort of passengers; magnificent dining cars. The popular low-rate short line. 21-Mar. 31.

MARINE REVIEW

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O

The books of the United States treasury department on June 30, 1895, contained the names of 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1894, was 359 and their aggregate gross tonnage 634,467.84; the number of vessels of this class owned in all other parts of the country on the same date was 316 and their tonnage 642,-642.50, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels	1,755	857,735.00
Sailing vessels	1,100	300,642.00
Unrigged	487	83,082.00
Total	3,342	1,241,459.00

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	Number.	Net Tonnage.
Year ending June 30, 1891	204	111,856.45
" " " 1892	169	45,168.98
" " " 1893	175	99,271.24
" " " 1894	106	41,984.61
" " " 1895	93	36,353.00
Total	747	334,634.28

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

(From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1895.*	1894.	1893.	1895.	1894.	1893.
No. vessel pass'ges	17,956	14,491	12,008	3,434	3,352	3,341
T'n'ge, net registd	16,806,781	13,110,366	9,849,754	8,448,383	8,039,175	7,659,068
Days of Navigat'n	231	234	219	365	365	365

* 1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about 4½ per cent. of the whole, but largely in American vessels.

Entered at Cleveland Post Office as Second-class Mail Matter.

THE MARINE REVIEW has honestly supported the movement of the national association of marine engineers in the present congress to pass a bill making it certain that all engineers of steam vessels shall be regarded as officers of such vessels, and providing against the employment of engineers other than those who are citizens of the United States. We feel justified, therefore, in saying that on account of the actions lately of some officers of the association of engineers the chances of passage of a law of this kind are being jeopardized. After a great deal of labor leading up to the preparation of a satisfactory bill, it was quite certain, a few weeks ago, that a measure covering the two important points—citizenship and the recognition of engineers as officers—could be gotten through both houses of congress, but certain officers of the organization of engineers are evidently not satisfied with this victory. In the senate a bill (S 1242), had been reported favorably from committee with the consent of Mr. Frye, who is chairman of the commerce committee and a very influential member. Mr. Frye was not entirely satisfied with the course taken by the engineers, and if he saw fit he might have delayed, and probably have prevented altogether the passage of the senate bill. He did not do so, but it was evident that there was danger of opposition from him in event of any attempt to change the bill after it was reported from the commerce committee. Notwithstanding this, representatives of the organization of engineers who are in Washington have secured the passage in the house of a bill that includes certain features stricken out by the commerce committee of the senate. This has thrown the matter into conference, where Senator Frye's influence will be just as important as it was in the commerce committee of the senate. If he sees fit to prevent the passage of any kind of a bill on the subject he can probably do so, and this is why we say the engineers are taking chances in doing anything that may prompt opposition from him. The Squire bill as reported from the commerce committee of the senate was a great victory for the engineers. If there is no legislation on the subject in the present congress they can blame their own officers for trying to get too much.

ALTHOUGH SENATOR FRYE'S bill for the establishment of a department of commerce is favored generally by the shipping interests of the country, and in fact by all interests directly interested in it excepting the politicians, it is hardly probable that the measure will be voted upon or even fully discussed in the present congress. There are too many other matters of importance taking precedence, and this bill anyhow is deserving of careful consideration. The changes proposed by it are in the main similiar to those suggested during three or four years past. The department of commerce and manufactures as proposed is to have general jurisdiction over the foreign and internal commerce of the United States, except in so far as relates to the collection of the revenue and the administration of the customs and internal revenue laws. It shall also have jurisdiction over all matters relating to the manufacturing interests of the United States, including the extension of foreign markets for the same, and the increase of trade and facilities with foreign countries; and the secretary of commerce and manufactures shall have and perform all the duties now incumbent upon the secretary of the treasury in relation to the trade and commerce of the United States, whether the same be upon land or water. The feature of the bill which is of special interest to vessel owners is that transferring the bureaus of the treasury department known as the life-saving service, the light-house board, the marine hospital service, the bureau of steamboat inspection, the bureau of navigation, the United States coast and geodetic survey, together with the bureau of statistics from the department of the treasury to the new department of commerce and manufactures. It is also proposed to transfer the state department bureau of statistics to the new department and to consolidate it with the treasury department bureau of the same name, but provision is made to have the consular officers thus transferred report to and act under the direction of the secretary of state whenever they are required to act in a diplomatic capacity in matters not directly connected with the commercial interests of the country.

VARIOUS newspapers have published a statement to the effect that experience with the Pittsburg & Shenango Railway Co.'s car ferry steamers between Conneaut, O., and Port Dover, Ont., have proven that winter navigation with car ferries on Lake Erie is impossible. If the owners of the car ferries themselves were consulted they would probably say that the service is entirely practicable and admit, at the same time, that the difficulties which they have met with have been due largely to their not having put money enough into the vessels to secure the power and strength of hull and machinery that was required. It may be said also that the service was started without sufficient time and money being applied to terminals and other parts of the system.

ANOTHER important improvement is certain to follow the introduction of 400-foot ore carriers on the lakes. The immense open holds of these big vesssels offer special opportunities for the development of a machine for trimming the ore after it is dumped into the vessel from pockets in shipping docks at the upper lake ports. The labor cost of about 3 cents a ton which is paid for trimming is an important item, and then too there has been more or less trouble of late with this kind of labor. At least two of the big ship building companies are trying to work out the details of a machine for trimming ore, to be located permanently in the vessel's hold, and it is quite probable that such a machine will be ready for use before the coming season is at an end.

EX-CONGRESSMAN H. W. SEYMOUR of Duluth is of the opinion that a tunnel under the Straits of Mackinaw would prove a valuable investment for the Michigan Central, Pennsylvania, D. S. S. & A. and other railways that might build up a big business with the northwest through such an enterprise. When it is considered, however, that the distance across the Straits at the narrowest point is nearly four miles, Mr. Seymour's suggestion will probably not be met by a great deal of enthusiasm, especially as the business of the railways now crossing at this point is well cared for by two of the best car ferries in the world.

REPRESENTATIVES of the Sailor's Union on the lakes who tried to pass in the present congress bills for the better manning of lake vessels must have been very ignorant of conditions prevailing on these vessels. In the senate one of the bills was introduced by Mr. Cullom. A single report regarding it from the supervising inspector general of steam vessels showed so many inconsistencies that it was immediately reported adversely by the committee on commerce.

GEN. CASEY, whose death was announced from Washington a few days ago, was known personally to leading members of the Lake Carriers' Association and to others interested in the most important government works on the lakes. As chief of army engineers, a position which he occupied for many years, he was in charge of river and harbor work all over the country as well as on the lakes. He took great pride in the army engineer corps and its work.

NOTWITHSTANDING the present quietness regarding the Detroit river bridge, Gen. Craighill, chief of army engineers, is still quoted as saying that in his opinion the bridge bill will be passed. Gen. Craighill may have some inside information, but it would certainly seem that a power greater than that ever before brought out by even the railway corporations will be necessary to force this bill through the house.

Great Scope of United States Light-House Institution.

Few people, aside from those who are actually in touch with the general workings of the United States light-house service, have an idea of the immense scope of this institution. The 1895 report of the board just at hand shows that there are 1,014 light-houses and beacon lights distributed over the great coast line of the United States. An expenditure of $100,000 for a single light of this kind is common in the undertakings of the service, and when congressional appropriations are liberal ten to twenty-five new lights of this kind may be established in a single year. The service is certainly the grandest of its kind in the world. There is no estimate in the board's report of the aggregate value of light-houses and light-house sites but the total is certainly far up in the millions.

In addition to these stationary lights there were under the control of the light-house establishment on June 30, 1895, the following named aids to navigation: Light-ships in position, 41; light-ships for relief, 4; electric-lighted buoys in position, 11; gas buoys in position, 12; fog signals operated by steam or caloric engines, 130; fog signals operated by clockwork, 185; post lights on the Western rivers, 1,411; post lights on other rivers, 382; day or unlighted beacons, 424; whistling buoys in position, 66; bell buoys in position, 96; other buoys in position, including pile buoys and stakes in fifth district and buoys in Alaskan waters, 4,547.

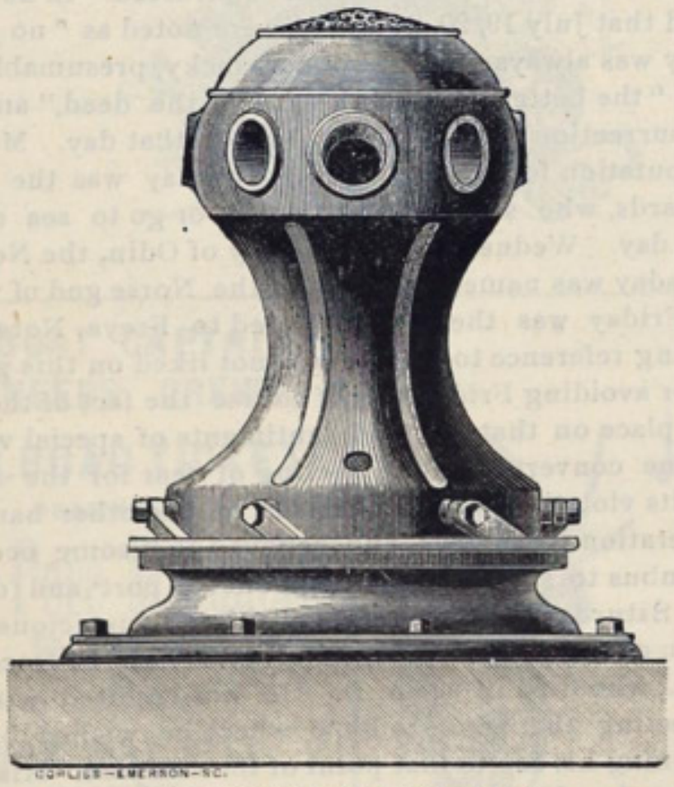
In the construction, care and maintenance of these aids to navigation there were employed during 1895: Steam tenders (vessels of seagoing kind), 32; steam launches, 4; sailing tenders, 2; light keepers, 1,203; other employees, including crews of light-ships and tenders, 1,078; laborers in charge of western river lights, 1,154; laborers in charge of other river post lights, 210.

But the best indication of the great scope of the service is the following set of figures, covering estimates of general appropriations for the year 1896. These general appropriations have reference simply to maintenance, and represent yearly expenditures of the board, aside from anything in the way of new construction, and aside also from the salaries of a large number of army and navy officers, who direct affairs in the institution and who are paid by the army and navy departments: Supplies of light houses, $410,000; repairs of light-houses, $600,000; salaries of keepers of light-houses, $700,000; expenses of light-vessels, $350,000; expenses of buoyage, $500,000; expenses of fog-signals, $125,000; inspecting lights, $5,000; lighting of rivers, $350,000; survey of light-house sites, $1,000.

Providence Patent Capstans.

Patented Oct. 19, 1886, and Nov. 12, 1889.

The capstans shown below are among the increasing list of artlcles of American manufacture which have forced their way on their merits into general adoption in Great Britain and other foreign countries. That this design should have attracted the attention and commanded the admiration of the British ship owners is not of itself at all remarkable, as, like the other machinery put upon the market by the same company, it has attained instant and lasting popularity wherever it has been known

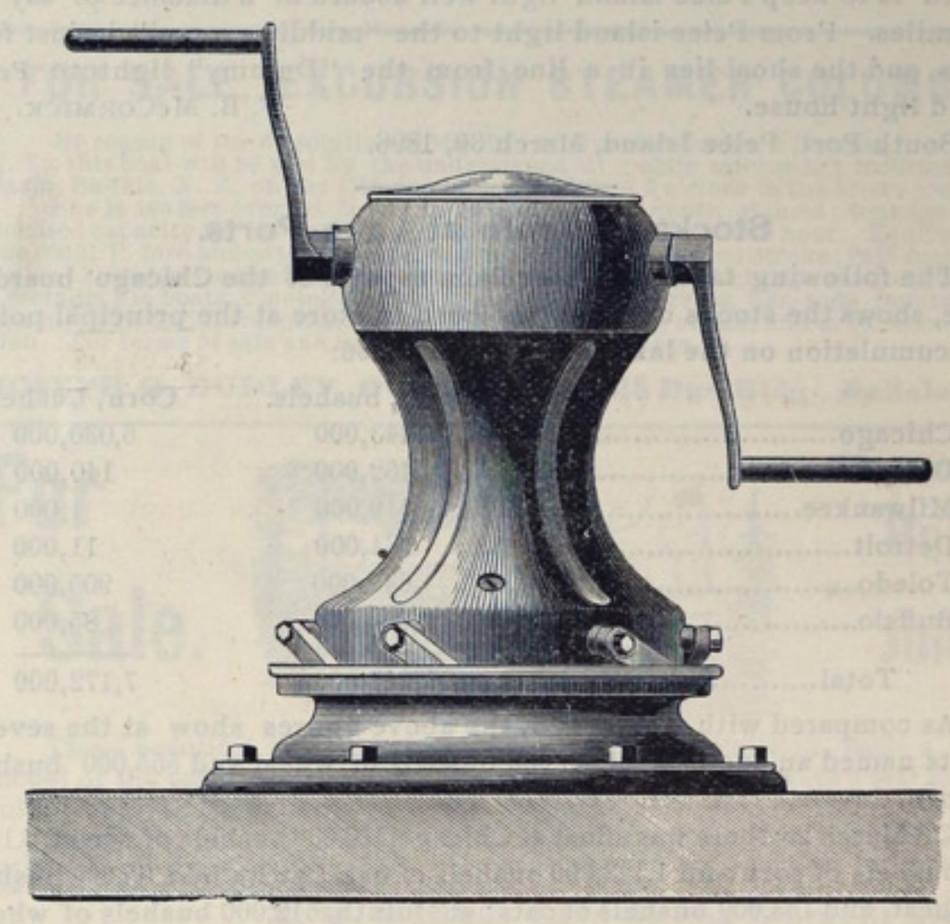


PROVIDENCE BAR CAPSTAN.

Knowing the reputation that the American Ship Windlass Co. has gained and maintained through forty years experience in their special line of business, we should not, have been surprised to hear that the manifest merits of their capstans, their simplicity of construction, ease of manipulation, strength and reliability had broken down British prejudice, and won over the ship owners and captains to call for Providence machines and to insist upon having them.

More remarkable, however, is the information that this change in the temper of the British nautical public has been brought about not alone by merit but by a regard for economy, and this not only in the long run but on first cost. Our enterprising Providence firm are underselling the foreign capstan manufacturers right in their own cities, and at the same prices that the Providence machines can be bought for in America. When to this is added the fact of their durability and freedom from repairs, it will be seen that the American Ship Windlass Co's capstans are the best and cheapest in the world.

This capstan by the test of long and severe service has been found perfectly adapted to the work for which it is designed. The gears are large and strong, the studs and shaft are of steel, and the shaft has no shoulders to weaken it being the same size its entire length. It can easily be taken apart for cleaning or repairs and put together again by any laborer, and is readily oiled from the outside. All parts are made to gauge and templet, insuring a smooth running capstan, with gears working to best advantage, exactly on the pitch line, thus reducing the friction



PROVIDENCE CRANK CAPSTAN.

to a minimum. Duplicate parts can be furnished any time at an hour's notice.

"The large number of these capstans which are sold annually, and the steady and increasing demand, have enabled the company to fit up with expensive gauges and special machinery to manufacture in large quantities, and to take every advantage in economical production. These capstans are carried in stock by numerous agents scattered all over this country, and in Canada, England, Scotland, Wales and other foreign countries. The change from speed to power in the bar capstan is made by simply reversing the direction of motion of the bars. A double set of safety pawls is provided, inside and outside, so that if either should give way there is still no danger to the men on the bars. By throwing a pawl tripper the capstan barrel may be rotated in the reverse direction. The utmost care is used in the manufacture of these capstans both in respect to material and workmanship, and the fact should be considered that loss of life and property is sometimes occasioned by the use of weak or defective capstans of cheaper and less reliable makes.

These capstans are employed on most of the vessels of the United States navy, in government and private dry docks, and for a large variety of uses. They are built to operate with cranks as well as bars, and hundreds of steam capstans are furnished annually for various uses. They are also employed in connnection with electric motors and with hydraulic motors, several of the latter having been installed lately at the St. Mary's Falls canal and at Cascade Locks, Ore. Anyone interested is invited to visit the works, near Red Bridge, Providence, R I., and see for themselves the machine taken apart, and examine the design, workmanship and material of any of the Providence capstans.—Marine Journal, New York.

Edward Towns, No. 401 Butler street. Port Huron, Mich., asks for information regarding the number of boilers in the Buffalo steamer Chemung and the cost of marine boilers at the present time. The Chemung has six boilers, each 11 feet 8 inches by 12 feet, furnishing steam to triple expansion engines that have cylinders of 28, 42½ and 72 inches diameter by 54 inches stroke. A Scotch boiler of 11½ feet diameter can be purchased new for about $5,000.

A Light on Pelee "Middle Ground."

Editor MARINE REVIEW: Some time since various articles appeared in your columns relative to the proposed light above mentioned, as well as other matters connected with the same. There can be no question but that this light is needed, but it by no means follows that the light-house on Pelee island should either be removed to the "middle ground" or closed altogether; both are needed for general as well as local navigation. The light on the "middle ground" can be secured by proper and persistent efforts in that direction, if laid before the department of public works at Ottawa.

Another matter has been much dwelt upon—that is the new shoals found south-east of the "Dummy" light. These can be largely, if not entirely, avoided by taking the old course and going west and south of the "middle ground." I say the "old course" for old sailors will remember that thirty and forty years ago almost all vessels stood in close to Pelee island light, west of the "middle ground," and only of late years has this new fashion of a more easterly and northerly course in standing through the north passage been adopted. The chart shows good water clear through the channel on this old course, and the only thing required is to keep Pelee island light well aboard at a distance of say 1½ to 2 miles. From Pelee island light to the "middle ground" is just four miles, and the shoal lies in a line from the "Dummy" light to Pelee island light house.

F. B. MCCORMICK.

South Port, Pelee Island, March 30, 1896.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on March 28, 1896:

	Wheat, bushels.	Corn, bushels.
Chicago	18,443,000	6,030,000
Duluth	13,452,000	140,000
Milwaukee	419,000	1,000
Detroit	264,000	11,000
Toledo	645,000	905,000
Buffalo	1,222,000	85,000
Total	34,445,000	7,172,000

As compared with a week ago, the above figures show at the several points named an increase of 53,000 bushels of wheat and 555,000 bushels of corn.

On March 28, there was afloat at Chicago 716,000 bushels of wheat, 6,169,000 bushels of corn and 1,123,000 bushels of oats; at Buffalo, 65,000 bushels of wheat, and 163,000 bushels of oats; at Duluth, 512,000 bushels of wheat, and at Milwaukee 176,000 bushels of wheat and 280,000 bushels of oats.

In General.

Hiram S. Maxim has consented to write a series of important illustrated articles on the evolution and manufacture of automatic firing guns, the first of which appears in the current issue of Industries and Iron, London.

A dry dock 669 feet long at Port Orchard, Puget sound, is to be turned over to the government during the present month. The dock is 130 feet wide at the top; depth at sill 30 feet, and depth from top of dock to floor 39 feet. The abutment is of stone and the entrance is built with concrete and masonry. Construction was begun in December, 1892.

The French government has issued advertisements to the inventors of the world inviting a competition the result of which will be the adoption of a type of submarine boat for the French navy. Information to this effect has just reached the navy department. This course was followed by the United States eight years ago and after considerable experimenting resulted in the adoption of the type of boat now under construction at Baltimore. The French now have about half a dozen submarine boats, but from the advertisement it is evident that none of them has given satisfaction.

Upon completion of the fifteen torpedo boats, for which the present congress is expected to make appropriations, the navy department expects to have houses in readiness for storing them. It is planned to keep most of the fleet of torpedo boats in ordinary, and the department has asked congress for an appropriation of $150,000 with which to build sheds at Portsmouth, New York and Norfolk. Each shed will accommodate ten boats. Advertisements calling for bids on the new boats will be most general in their character and will give builders the widest latitude in their construction. The kind of boiler to be used will be left to the discretion of the contractors. All that the department will require will be a staunch and serviceable boat capable of giving a prescribed speed.

Reduced rate tourist tickets to California points are now on sale by all agents of the Nickel Plate road. Our trains make excellent connections at Chicago with through trains to the coast. 22-Mar. 31.

Trade Notes.

There are few concerns on the great lakes that are in receipt of more orders from salt water vessel builders than the Lake Erie Boiler Works at Buffalo.—Marine Journal, New York.

A foundry 160 feet square, having steel frame work throughout and equipped with overhead runways and trolleys, will be built for the Michigan-Peninsular Car Co. of Detroit by the Berlin Iron Bridge Co. of East Berlin, Conn.

Purchasing agents for ship building companies will do well to apply to Page Bros & Co., No. 228 Cambridge street, Boston, Mass., for a copy of their new catalogue of oil and electric fixtures for marine use. It is the most elaborately illustrated catalogue published recently.

The battleship Iowa, which was launched at Cramp's ship yard, Philadelphia, and which was described recently in the REVIEW, is equipped with an entire output of Blake pumps, including fire, feed, bilge and water service pumps. Alike to all other battleships and cruisers built by the Cramps, this vessel will also be equipped with Blake vertical twin air pumps for the main condensers.

H. M. Bean, ship builder of Camden, Me., informs the REVIEW that he has under construction a four-masted centerboard schooner for Capt. J G. Crowley of Taunton, Mass., which is of 215 feet keel, 44 feet beam and 21 feet depth and of about 2,600 net tons capacity. This vessel is double-decked and is valued at $60,000. He is also building another schooner of the keel type, 190 by 42 by 20 feet, capable of carrying 1,900 net tons and valued at $50,000.

Graphite Paint Gives Satisfaction.

The Detroit Graphite Mfg. Co. of Detroit, Mich., received an order June 16, 895, for their Superior Graphite Paint from Capt. Robert Hornbrook of Evansville, Ind., to paint the canvas roof of the steamer Norman. As these goods were unknown to Capt. Hornbrook, they were shipped to him on trial to be paid for when he was entirely satisfied with results. On Dec. 12, he wrote: "Your paint has given me the best of satisfaction through the warm weather, but I understood that I was not to pay for it until March so as to see how it will stand cold weather." March 21, 1896, the Detroit Graphite Mfg. Co., received the following letter.

EVANSVILLE, IND., Mar. 19, 1896.

DETROIT GRAPHITE MFG., CO.:

Enclosed find order for —— for paints bought of you June 16. The paint has given me the best of satisfaction. It stands wear and weather better than anything I have ever used on any of my roofs.

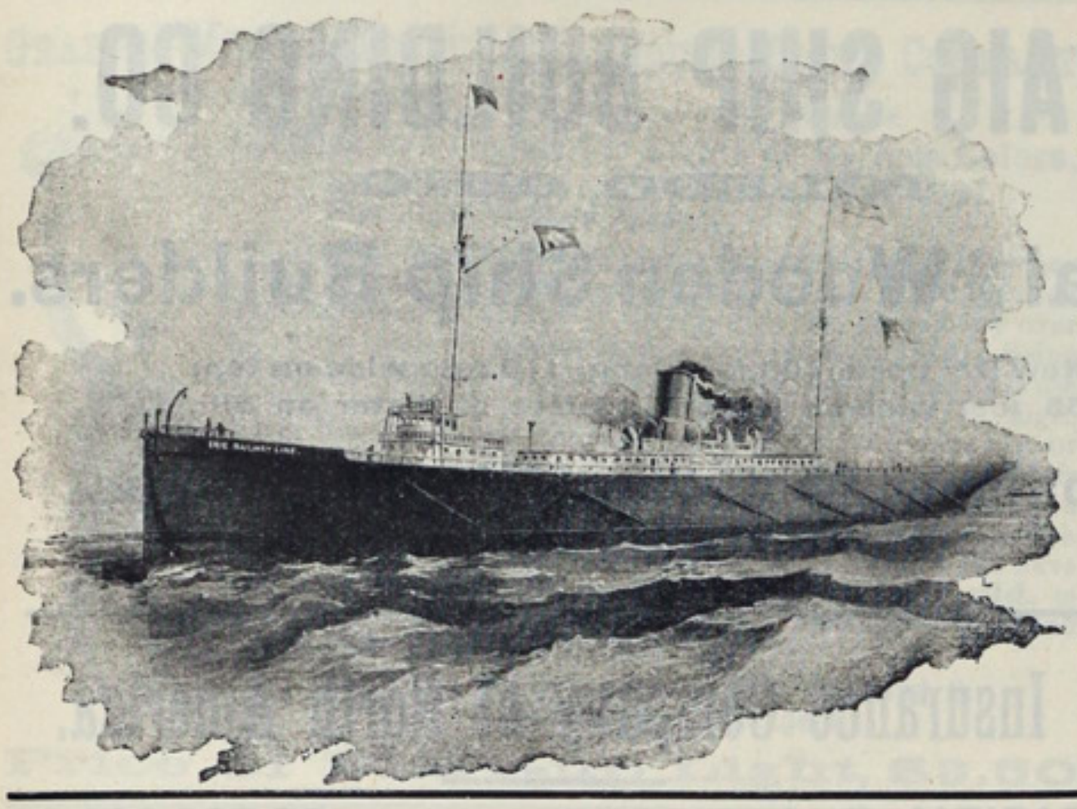
Yours truly,

ROBERT HORNBROOK.

Sailors' Superstitions.

The old superstition as to lucky and unlucky days has largely passed away. Foreign mails start and arrive on Fridays without any regard for beliefs which were at one time accepted as beyond argument by most sailors. Some thought otherwise, as will later appear. Generally speaking, all saints' days and church holidays were regarded as unlucky, and certain days in each month were rather distrusted. In an old almanac of 1615 we find that July 19, 20, 24 and 31 were noted as "no good anchorage." Sunday was always looked upon as lucky, presumably in reliance on the maxim "the better the day the better the deed," and the fact of our Lord's resurrection having taken place on that day. Monday had no particular reputation for good or evil. Tuesday was the same, except among Spaniards, who said, "Don't marry or go to sea or leave your wife" on that day. Wednesday was the day of Odin, the Norse god, and lucky. Thursday was named after Thor, the Norse god of war, and was auspicious. Friday was the day dedicated to Freya, Norse goddess of love, and having reference to women was not liked on this ground. The true reason for avoiding Friday was of course the fact of the crucifixion having taken place on that day, and sentiments of special veneration for the day became converted into a feeling of fear for the results which would follow its violatian. The Spaniards, on the other hand, had a considerable veneration for Friday, and believed that some occult influence enabled Columbus to successfully clear out of port and discover land on that day. Saturday was generally considered auspicious.

The origin of the phrase "a capful of wind" can be traced to a Norse king, Eric VI., who died in 907 A. D. He was credited with the useful power of directing the wind to blow where he wished by the simple method of turning his cap to that point of the compass. His powers were much appreciated and trusted, and resulted in his being known as "windy cap." There is no evidence as to whether he could regulate the force of the wind as well as the direction; presumably he could, or his faithful believers would not have been so many. A "bag full of wind" is another common expression, and indicates something like a gale. This has been traced down to the classical legend of Eolus and his captive winds confined in bags.—Nautical Magazine, London.



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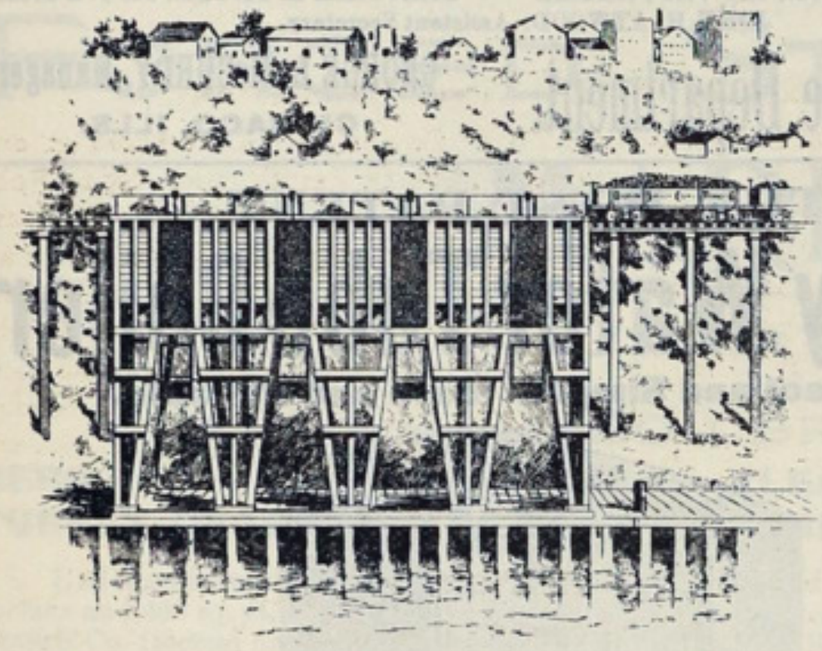

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FOR SALE, EXCURSION STEAMER COLUMBIA.

By reason of the dissolution of the firm of Murphy, Conlan & Company, of Buffalo, N. Y., this boat will be sold by the undersigned at public sale, at her mooring in Erie Basin, Buffalo, N. Y., on the 15th day of April, 1896, at 2 o'clock in the afternoon.

She is 140 feet over all, 31 feet beam and 10 feet depth of hold; tonnage of 299; licensed capacity for 1,000 passengers, and a speed of 16 miles an hour. Equipped with one 650 H.P. fore-and-aft compound engine, 18x36, with 27 inch stroke; 9x16 foot marine boiler. Full electric lighting plant, with 256 H.P. engine, 259 light dynamo, together with 4 metallic life-boats, 2 metallic life-rafts, 1,000 life-preservers, bar, soda fountain, etc., and all equipage, furnishings, and tackle. Built spring of 1892, and in excellent condition. For terms of sale and further information, address,

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Steamers Romeo and Juliet.

These beautiful twin Steamers are in perfect condition, each a perfect model of the other, with Cabins, Single Deck, Twin Screws, two sets Engines, fully equipped and allowed to carry 150 passengers each.

Length 80 ft. Beam 19 ft. Draft 3 ft. 8 in. (light). Built in 1891 for lake and river navigation. Original cost $19,000—will be sold cheap (no trade). A good thing with business for the right man. Call on or address

B. M. MYERS, Oakdale and Fremont Sts., CHICAGO, ILLS.

FOR SALE at a Bargain.

The tug Henry—Cylinders, 16½x18; new steel boiler; steel boiler house; hull in first-class condition. This is a most favorable opportunity to procure a first-class tug for dredging outfit. For particulars apply to **WILLIAM TRUBY,**

Fairport Harbor, O, where tug can be seen.

OFFICE of the Engineer 7th and 8th Light House District, New Orleans, La., March 19, 1896. Sealed proposals will be received at this office until 12 o'clock M., April 20, 1896, for furnishing and putting in place new boiler, and repair work on Light House Tender Arbutus. Specifications, form of proposal, and other information to be obtained on application to this office. The right is reserved to reject any or all bids, and to waive any defects. James B. Quinn, Major, Corps of Engineers, Engineer 7th and 8th Districts. Apr2

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$10,000 to $15,000 in a partly developed Lime Stone Quarry, situated in Wisconsin, 110 miles north of Chicago, on the West Shore of Lake Michigan, with **148 Acres of Stone Land,** including one mile of Lake Front with an abundance of the best Lake Sand. Stone can be utilized as Flux, Crushed, Rip-Rap and Building Stone; makes a first-class lime. Special attention is called to the transportation by water, which places this quarry in a position to beat all competitors for business in all lake towns.

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Steamer **SCHOOLCRAFT.**
Barges **MARY N. BOURKE, GEO. NESTER and KEWEENAW.**

For particulars apply to

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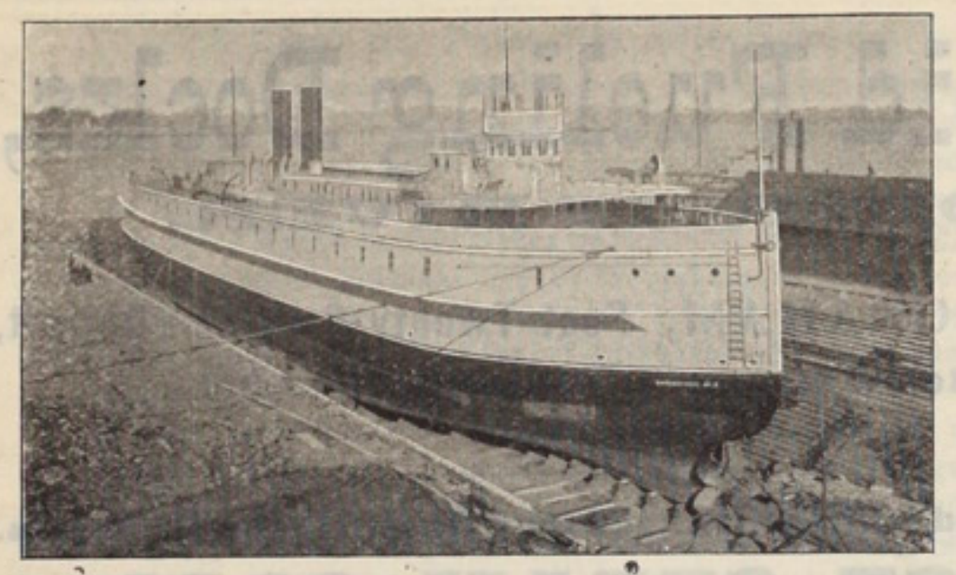

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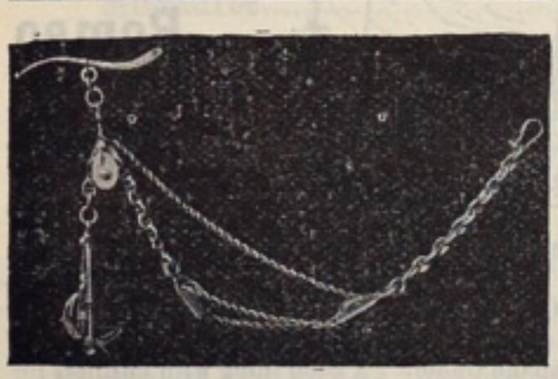

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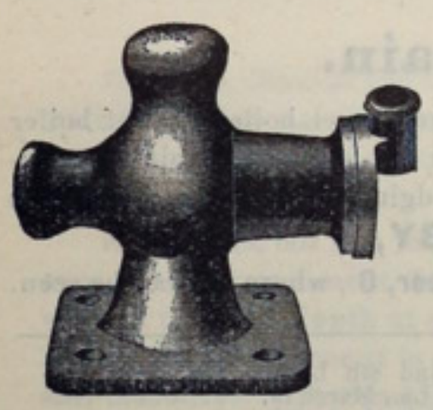

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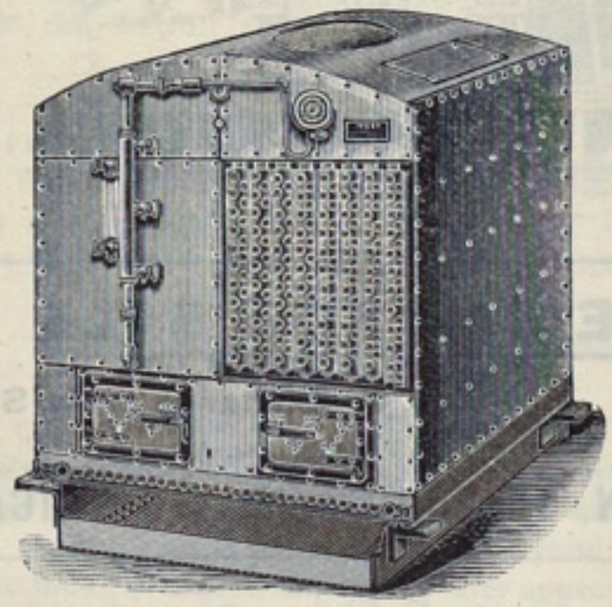

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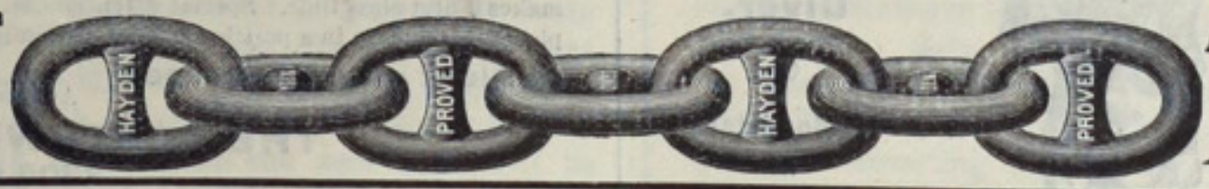

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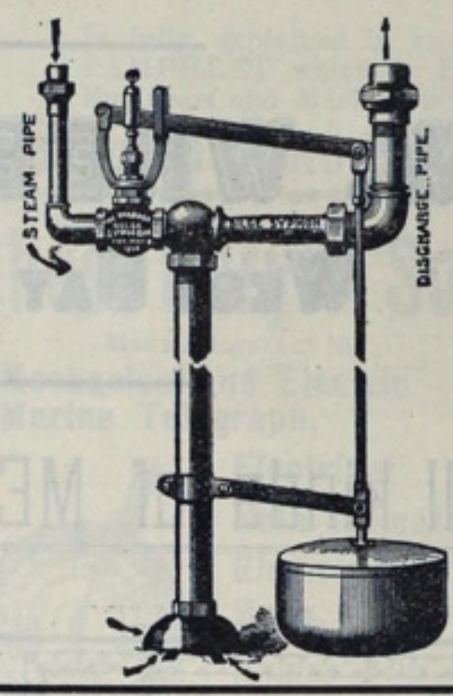

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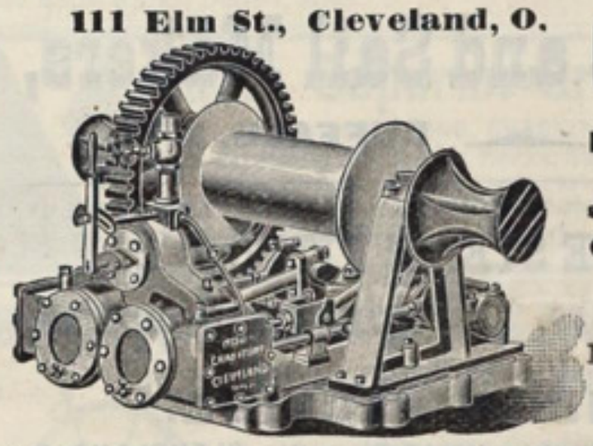

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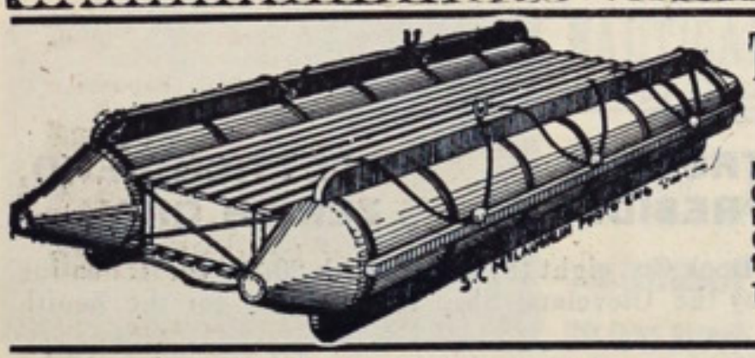

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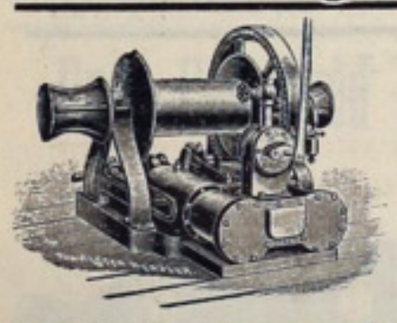

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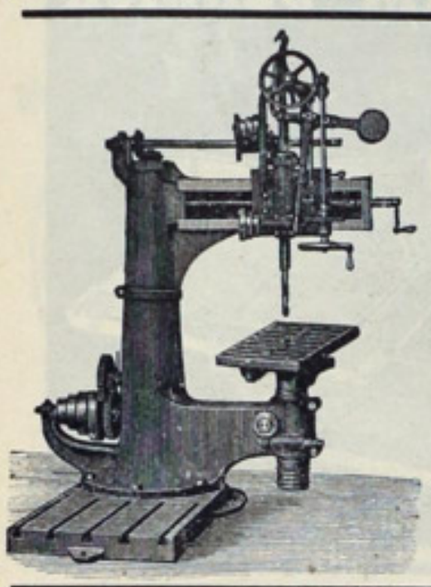

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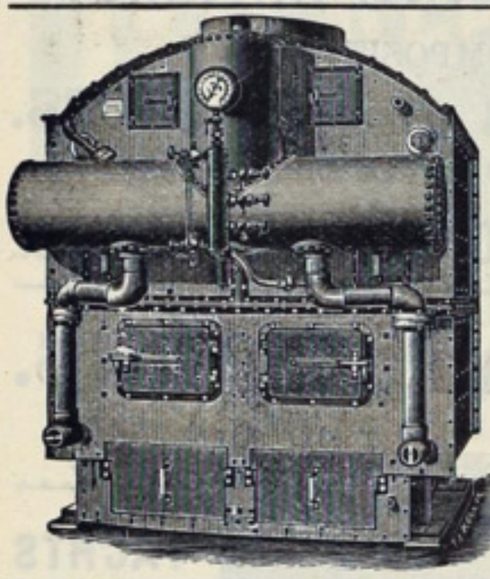

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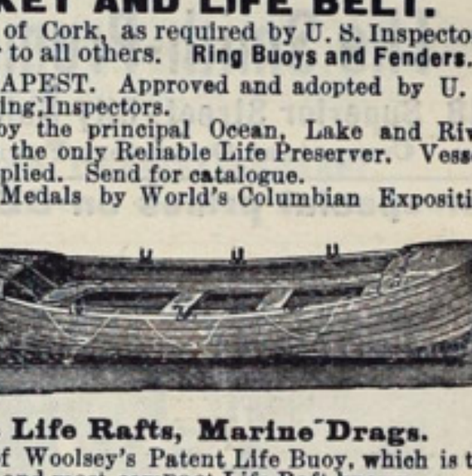

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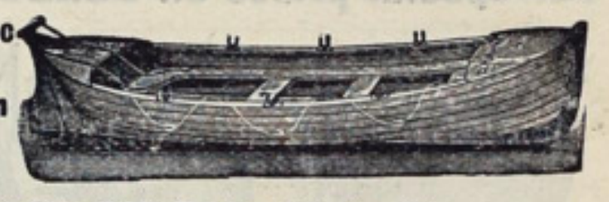

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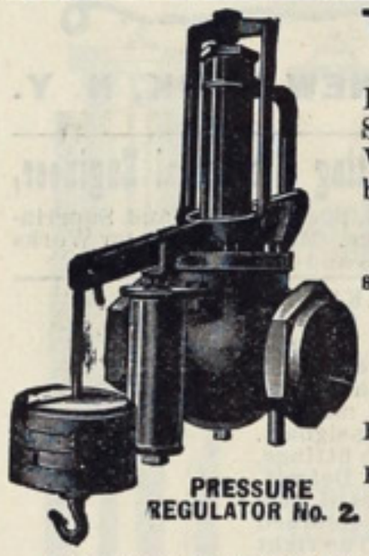

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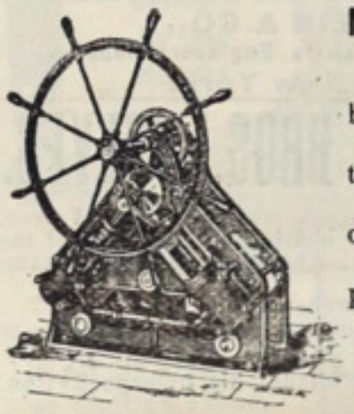

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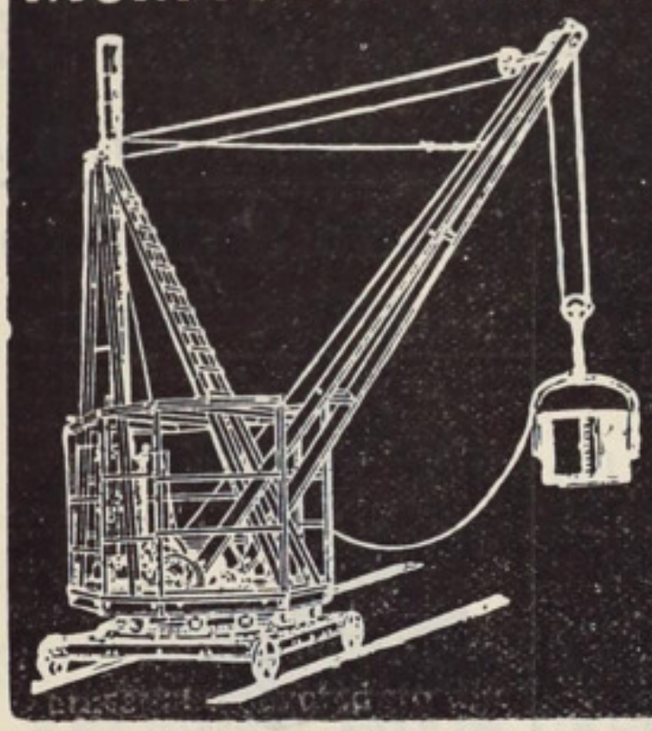

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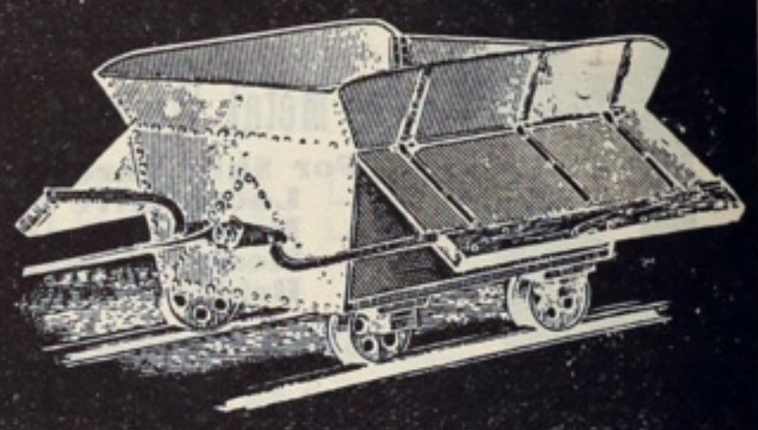

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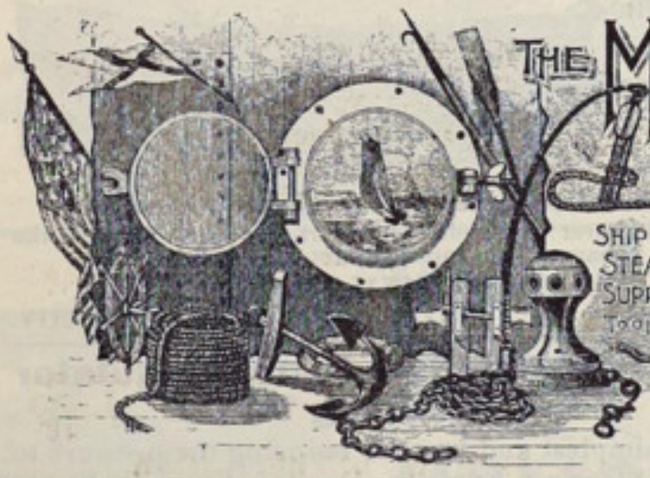

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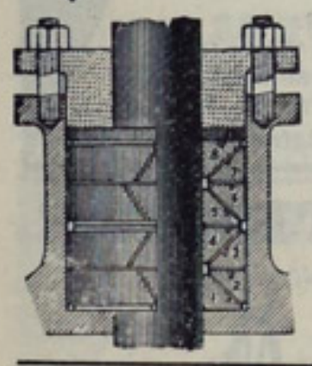

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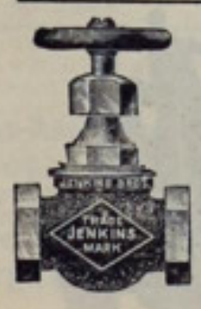

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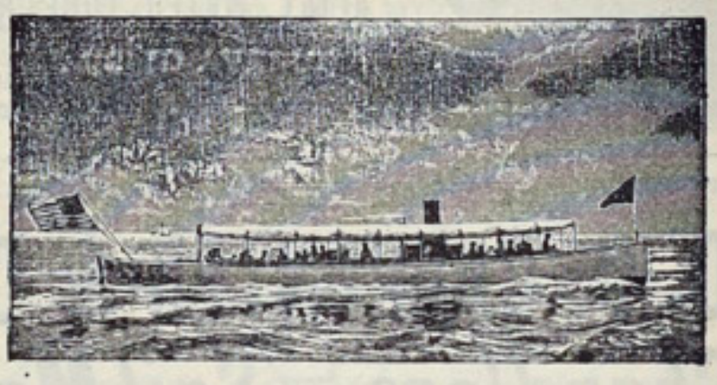

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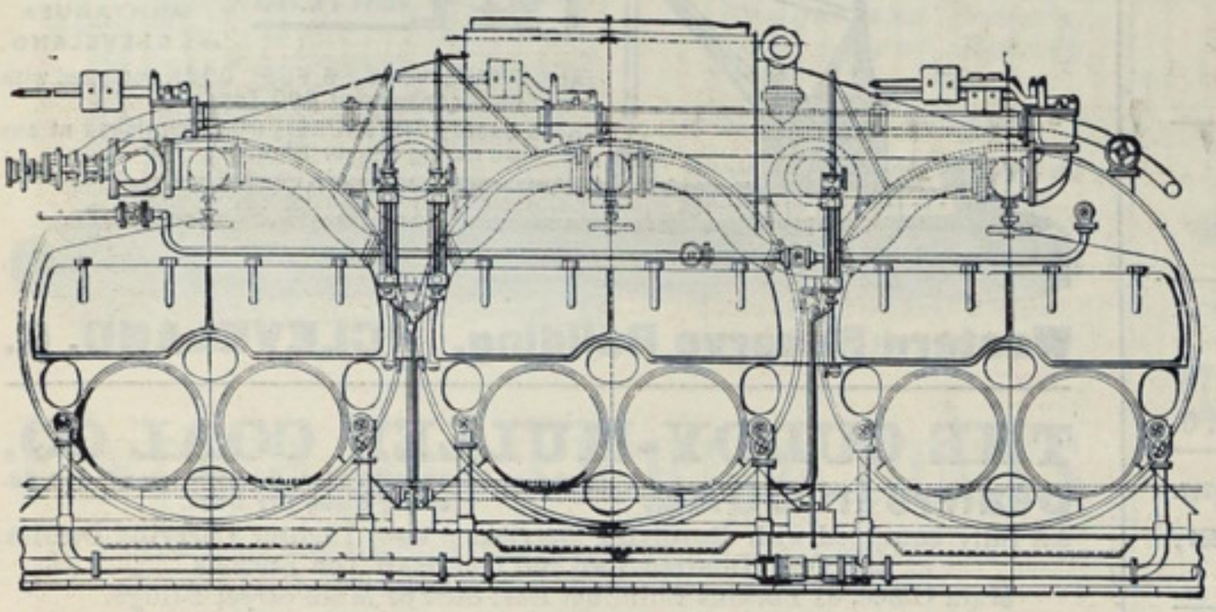

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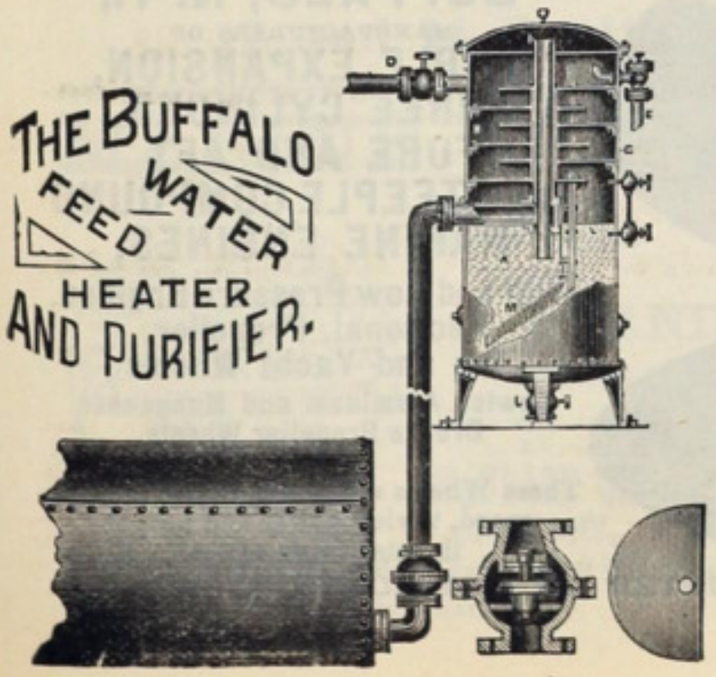

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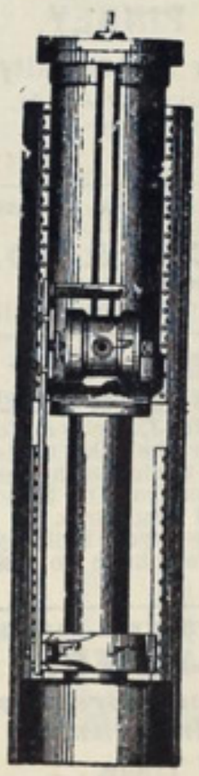

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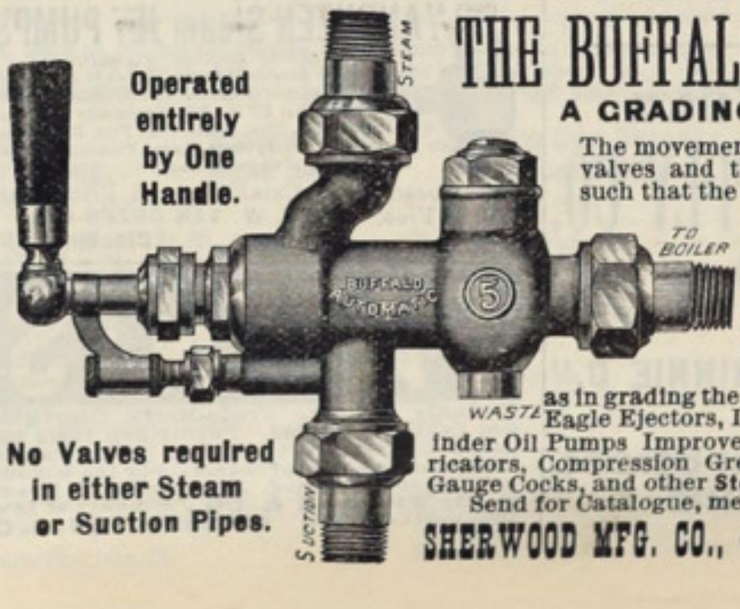

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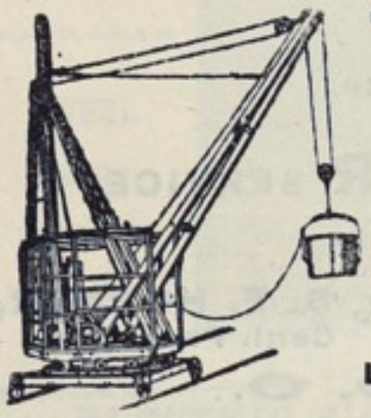

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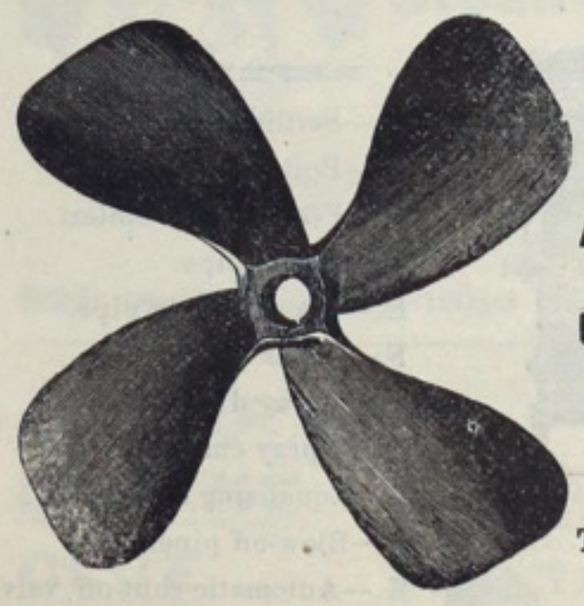

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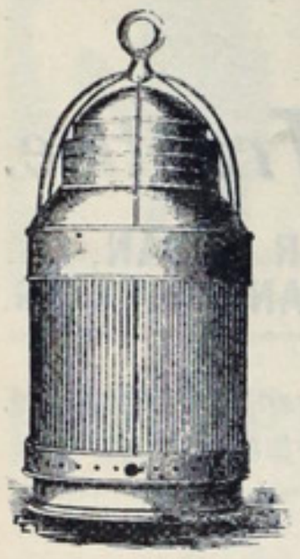

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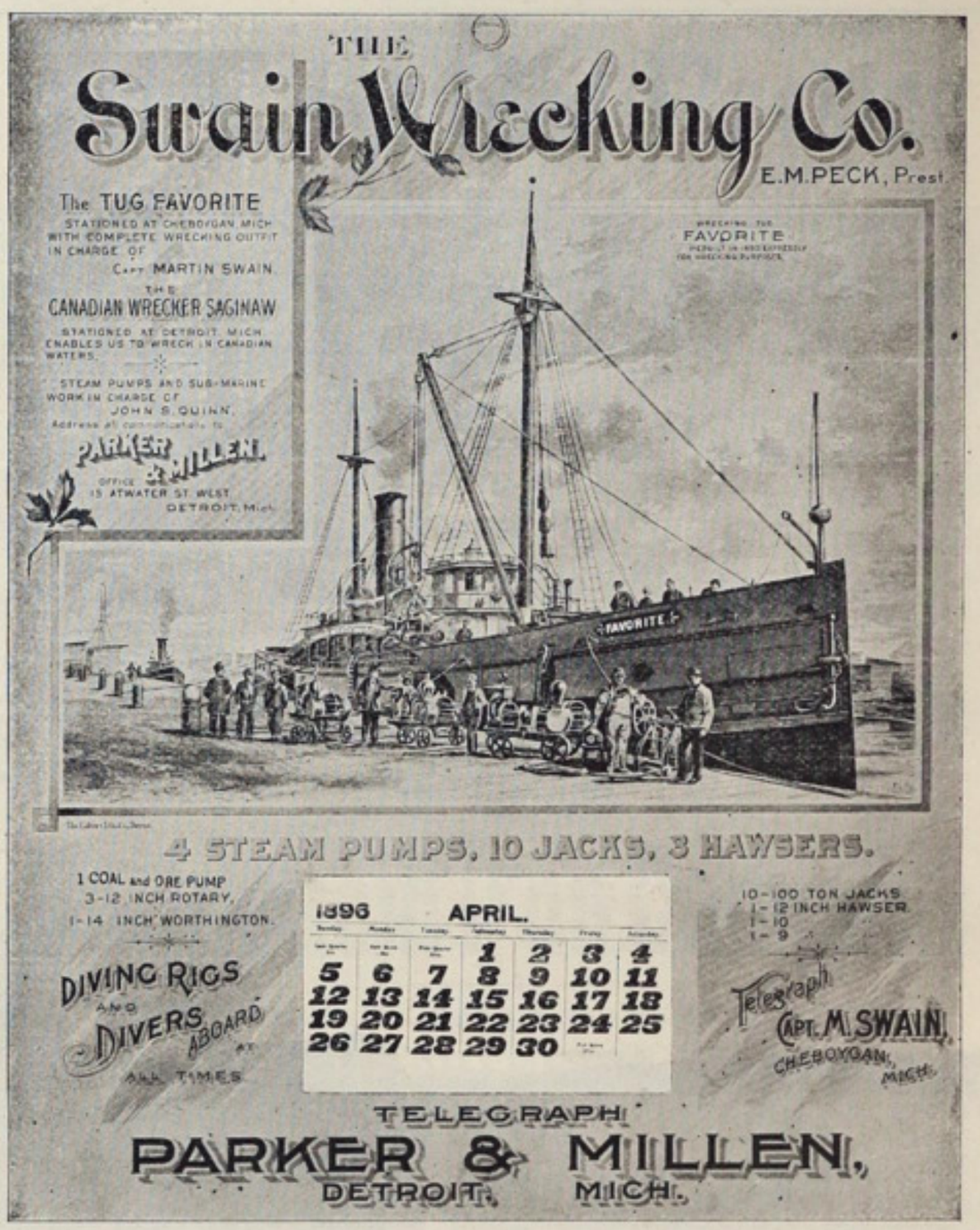

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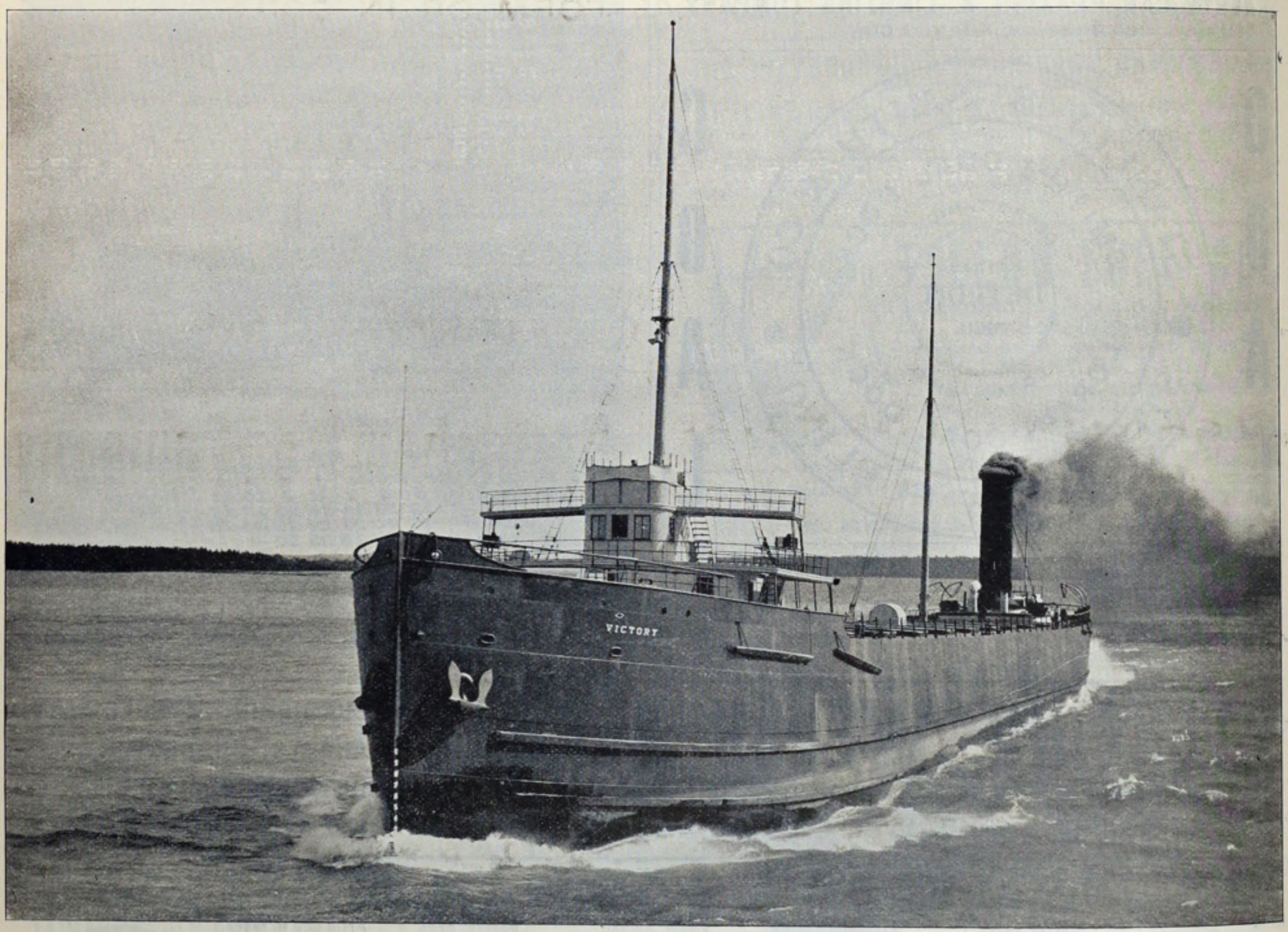

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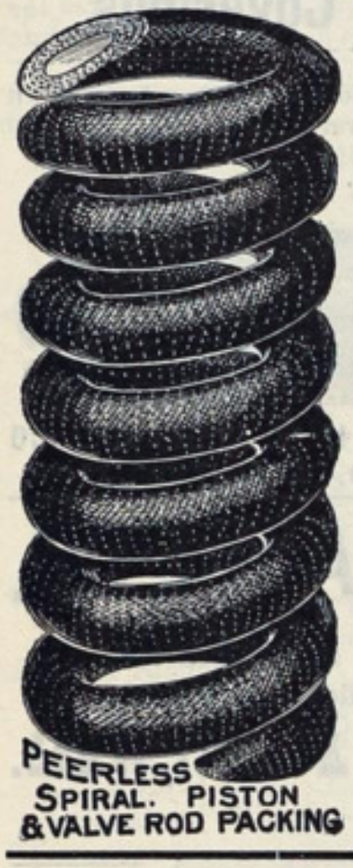

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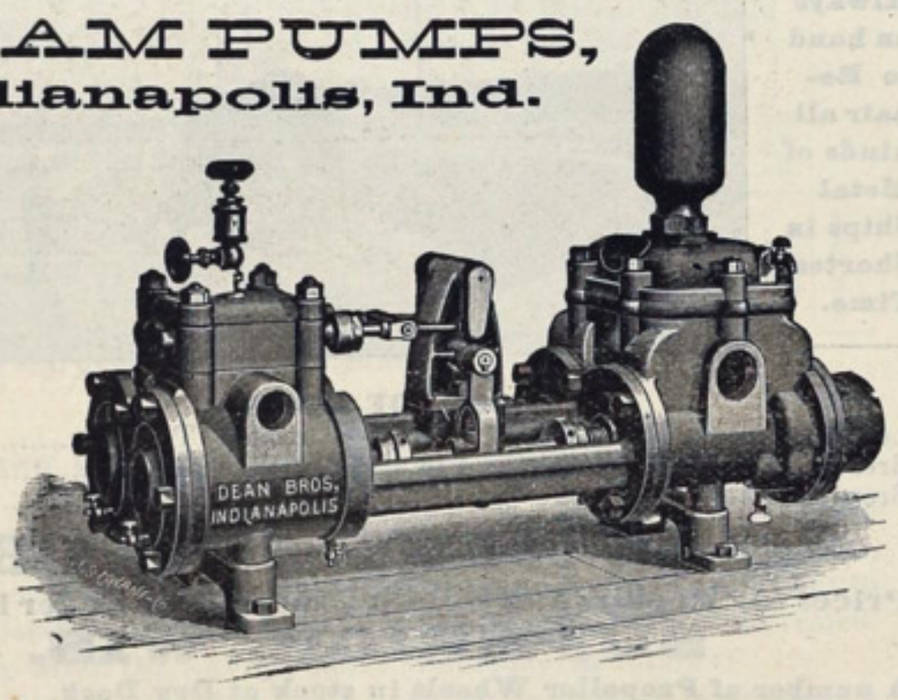

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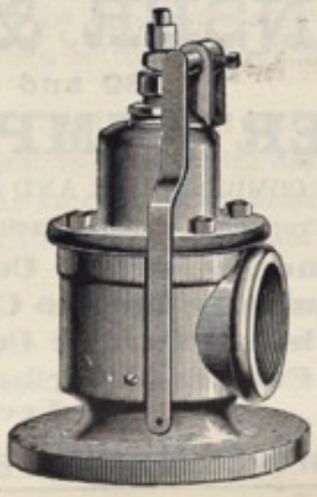

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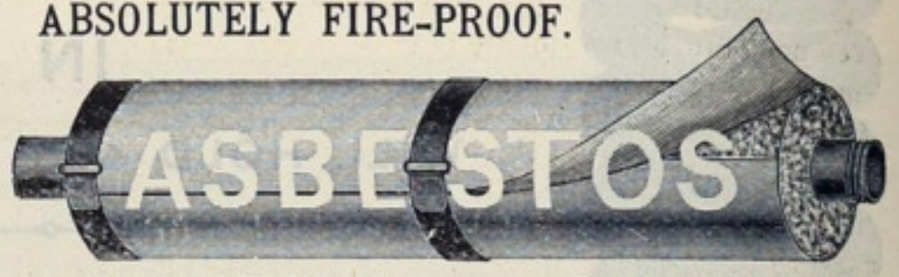

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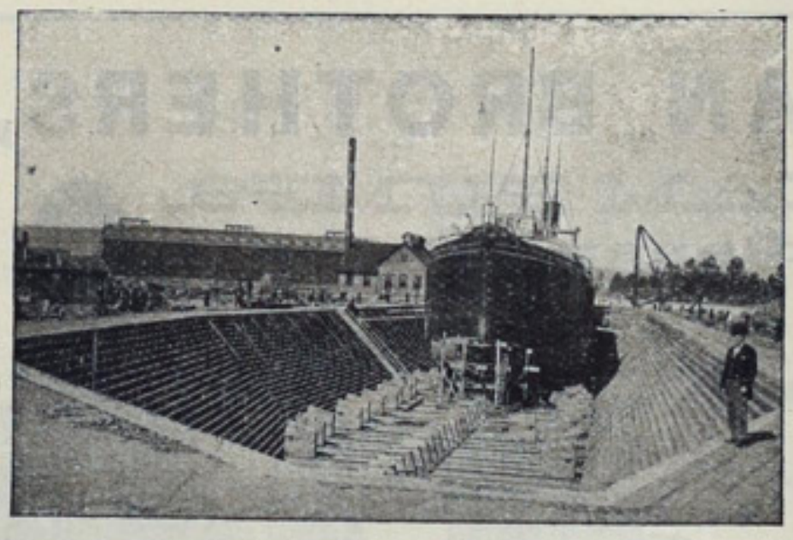

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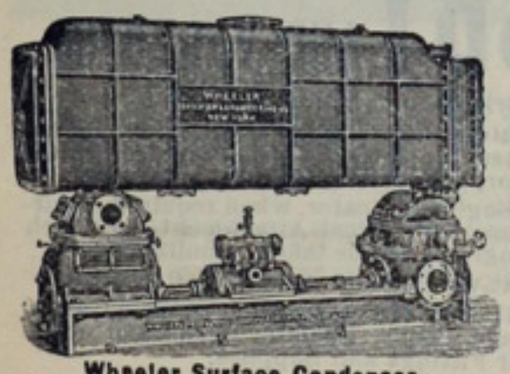

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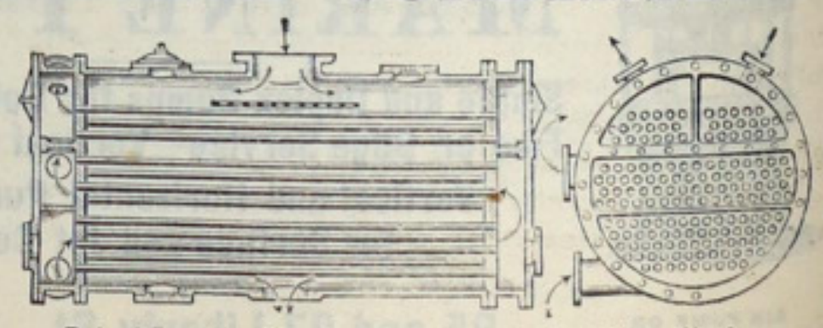

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